

Transcript: Sleep Junkies Podcast Episode 028: The Start School Later Movement

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Episode Homepage: <https://sleepjunkies.com/start-school-later-movement/>

This Episode's Guest: Dr Terra Ziporyn Snider is an award-winning novelist, playwright, science writer and the co-founder and Executive Director of Start School Later, a coalition of health professionals, sleep scientists, educators, parents, students, and other concerned citizens dedicated to increasing public awareness about the relationship between sleep and school hours and to ensuring school start times compatible with health, safety, education, and equity.

Full Transcript

Jeff Mann (JM): Good afternoon, and I'm very excited to have on the other end of the line Dr. Terra Ziporyn Snider. Today we're going to talk about a pretty hot topic, "Start School Later." Couldn't really have anyone more qualified to talk about the subject. Dr. Snider is one of the cofounders of the movement. Hi Terra.

Dr Terra Ziporyn Snider (TS) : Well hi. How are you?

JM: I'm really good, thanks. I'm really excited to talk to you and thanks so much for coming on the podcast.

TS: It is my pleasure. There is nothing I like more than discussing this particular topic and thank you for inviting me to speak.

JM: My pleasure. So what we're gonna do now, we're gonna assume that some people have heard about the Start School Later movement but we're gonna not make the assumption that everybody has heard about it.

So we're going to give it a bit of a background to this whole subject of adolescent sleep and teen sleep. We're going to be talking about this movement that started a few decades ago to try to tackle this problem by changing some of the very very early school start times in the States.

So we're going to move on to that in the latter part of the podcast. But first, our listeners will to get to know Terra a bit , give a bit of context to why the movement exists, and then we're going to talk about exactly what's happening with the Start School Later movement.

So Terra, you've got a wide-ranging CV and I think you called yourself a science historian. You've got a doctorate in science and medicine. You've done a lot of things. You've authored health books including the Harvard Guide to Women's Health. So you're also a fiction writer, I believe.

TS: Ah, Google. Yes, I write many things. I've been a writer probably longer than anything else in my life. I've always been a writer. I became interested in science and medical writing towards the end of college and went to graduate school to get a doctorate in the history of science and medicine primarily because I thought that would be a very useful field to know if I was going to present science and medicine to the public.

But I always planned to be a writer and all along I was writing fiction as well in place. What's interesting is that in this Start School Later effort, many of my interests have come together and I certainly didn't

plan that but I can explain that to you more if you want. It's really quite amazing because yes I could say I'm a dilettante or a renaissance woman depending on which side of the coin you wanna flip.

JM: Yep, I use that one sometimes.

TS: Yes. So I've always been a writer and I've always been very interested in presenting science to the public but science writing became a very very popular field I'd say in the 70s when I was in college and there was a movement to educate science writers so they knew a little bit about science.

They used to come out of writing obits for the local paper you know with an 8th grade education and suddenly they said you know it might be great if we had actual scientists writing about science or somebody who understood the scientific process.

So they were plucking people out of science. I was a biology major and a history major in college. I got a fellowship from the American Academy for the Advancement of science (AAAS) that was aimed at primarily graduate students and said if you're in science we want you to see what it's like in the media to see the differences between the culture of media and the culture of the lab.

So that started me off on this path. I went to graduate school because I was actually the youngest in that program and realized everyone else was getting a PhD so I thought I needed to do that. I worked in a bio psychology lab too as part of my doctorate so I really got a feel for how science is done.

Ended up as an associate editor at the Journal of the American Medical Association where I wrote on all kinds of science as I was finishing up my doctorate. I wrote my PhD thesis on the popularization of science and medicine.

So this all kind of fit together. I must have written my first piece on sleep back in the mid-1980s. I wrote something for consumer reports. I was writing about sleep labs and Dr. Dement and all that and it was all relatively new. So sleep has been in my consciousness as a science writer for a long time.

But you know I wrote about all kinds of topics as you mentioned. So the Harvard guide to Women's Health is almost encyclopedic on every topic you can think of that might affect women's health.

I've written all kinds of articles and books on all sorts of topics. So sleep wasn't my only focus, it was just one thing I had written about. But I was always very interested in the way that science and policy intertwined - that was the focus of my dissertation. How do findings from the laboratory make it into the world? How do people interpret them? How do they learn about them? How do they affect behavior and policy?

And it turns out that sleep science, and particularly the Start School Later issue, is a perfect example of how science and society interact and how science does not simply emerge from the lab and change the way people live. There are many many factors that are involved. And many of them have nothing to do with science. But they do have to do with the way the public interprets and understand science.

So those two parts of my life came together but the other part that came together was of course raising three children. Simply being a mother of three children, all of whom went to a high school that began at 7:17, precisely 7:17 in the morning. Even before my kids were in high school I had watched their babysitters and kids in the neighborhood standing on the corner in the dark and not really understanding what was going on because I certainly didn't remember that from my own days. And I

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think a lot of people don't really understand that although American high schools start incredibly early in the morning these days, this has not always been the case.

It was a trend that began in the 1970s and 80s to move these clock times, these bell times earlier and earlier. We don't have great data on this but everything we've been able to piece together suggests that before that time most, if not all, American schools for whatever age began at around 9:00 in the morning. Maybe 8:30, but certainly you know between 8:30 and 9:00. So this idea that school starts at 7:00, which is very common now, in this country is relatively new phenomenon and it's really interesting seeing how that came about.

JM: I was going to get to this later. But as you bring it up I think it's a really important point because you know we're sort of resistant to big changes. So we assume things like school start times for instance, this is the way we've always done it.

Therefore, if we change it, it's going to create huge problems. I was watching some of your presentations on YouTube and I think you said that up until the Second World War era, schools were more or less 9:00 to 5:00-ish. And then for various economic reasons there was a change in the 1970s. Could you just sort of outline that and how that took us to these early early start times today.

TS: I'd be happy to do that. I think if you would indulge me, it would be helpful though for your listeners especially if they're not in the United States to have a tiny bit of background about schools work in this country because it's an important part of understanding this.

You know you were saying people tend to think that however they do things is the only way or the best way and that's absolutely true. But what I think a lot of people don't realize, even many Americans don't realize, is that their particular school system is only one of thousands, hundreds of thousands of ways to run schools and your neighboring town may be at different times.

In fact schools change their start times all the time as well as many other things for all kinds of reasons or no reasons. There is no one way we do things. So we have close to 14,000 school districts, public school districts in the United States, close to 14,000 and nearly a 100,000 individual schools.

Within them, they all kind of do things their own way. So it's very hard to generalize about what time schools are starting or how they do things or how they've done things. We don't track these things either, which makes it very difficult to make historical pronouncements.

You know it's interesting, I always say we don't, you know in science, we don't study what we don't think matters. Until quite recently nobody really thought that the time of school or anything else mattered all that much, right? This all comes out of relatively new sleep science where we're starting to realize that the time of day we do things has an impact on our body and vice versa. We are more conscious of circadian rhythms and doing things at certain times but people really just didn't think you could start at 9:00, you could start at 10:00, you could start at 7:00, it didn't make any difference.

And you know the same kind of thinking is what has led us to think we could also do everything 24/7. We can shop all day and night. We can have stores open all day and night. You know, the television stations used to sign off at midnight or 1:00 a.m.

JM: I remember those days.

[11:55]

TS: Right, yeah, so we share that memory. But these days the idea is you can do anything anytime and it's just starting to dawn on people that maybe there are better and worse times to do certain things.

So when these schools set their schedules they didn't think about that and nobody recorded it. In fact, getting back to your question about the 70s, when the schools started changing their start times in the 70s, well they were always changing their times. But when they started going earlier and earlier, it never really dawned on anybody that it mattered. On top of that it wasn't even a big news story, it wasn't even that significant.

Because for the most part what they did was they brought them back in increments. You know they said, "Oh next year school will start ten minutes earlier." And then the following year another five minutes, then a couple years later another 20 minutes. So it wasn't a big jump. Nobody asked the public. There wasn't a vote on it, there wasn't a big announcement.

The reason that most communities accepted this was that schools change their hours all the time anyway. Not just because of sleep or saving money or anything, they do it for all kinds of reasons and parents are used to just jumping when they have to.

And as any parent knows probably virtually anywhere in the world, when your child goes to school, you have to adjust your life around that schedule. Often if you have more than one child you're dealing with several schedules or when the child gets older the schedule changes. Your work may be the same but you figure something out. Schools do not accommodate parents, they simply don't.

So these hours were changed. It just happened. We don't have a great record of it. You know I certainly try, my historical training has made me very interested in trying to track this down but it really hasn't been very productive with a few exceptions.

The few exceptions, you know historians have to use all kinds of indirect evidence to piece a story together. So I've been able to go back to town records and look at instructions for teachers. Chuck Seizler actually has a great set of letters that indicate in the early 20th century most American high school started at 9:00 a.m. I think they were letters to Louis German out at Stanford from some German colleague who was impressed at how late American high school started compared to European schools.

So we have these indirect things and we can watch movies and we can look at pictures and we can read novels and all these things suggest that basically nothing, nothing started - white collar jobs, schools, offices, shops - 9:00 a.m. was an opening time.

Now that's not to say people didn't wake up earlier to do other things. Obviously farm families got up quite early but they did not have institutional requirements to come in that early. I even remember growing up in the 60s and 70s, my mother used to say you never call anyone before 9:00 a.m. or after 9:00 p.m. You know there were restrictions, that sort of personal time, 9:00 a.m. was the cutoff. But that's gone now, we have meetings at 7:00 a.m. all the time.

JM: Yeah, so back in the day school times were more or less... they were a lot more aligned with work times. So the 9:00 to 5:00 culture kind of spanned school and work to a much greater extent than it does now. But I'm just interested if you could explain this change because you've highlighted some economic reasons for these changes as well.

[15:20]

TS: Right, I'll go back to that. So the 70s are a very interesting time, because they were very important as I'm sure many of the listeners know in the world of sleep.

I think 1970 was the year that William DeMent opened the first sleep clinic and sleep lab and there was just an explosion of work understanding the role of sleep. But ironically the 70s were also the time when schools started moving their clock times earlier.

The reasons for this were, they're still not entirely clear, but there were a lot of very important forces that were going on in the 70s economically as well as forces in education that had been accumulating since the early 20th century.

They all kind of collided in the 1970s to lead to a situation where it made sense to move the bell times.

So some of these forces in terms of economics were, you know, the 70s, as some people may recall, was a time, where was a stock market crash, there was a world energy crisis, right.

Remember the gas lines, people were really trying to save money on fuel for that reason. There were also things going on a larger scale like there had been a lot of suburbanization and highway building in the previous decades, people were moving farther and farther out.

So people were driving more and were able to go farther distances which led to them to use more buses and waste more fuel.

[16:48]

So there's a lot of pressure on schools to get the cost of busing down. And combined with that in education I think one thing people often forget is that there are a lot of kids suddenly going to school who had never gone to school before.

In the early 20th century the vast majority of American students didn't even go to high school. I mean in 1900 maybe 6% to 11% of American teenagers were even enrolled in high school, much less graduated. We didn't even require attend at elementary schools in every American state until 1917 you know just over a 100 years ago.

So it's really striking if you look at the trends of the number of students who went to school from 1900 to 1990s. It's well over 90% by the 1990s. So you've got this huge population of students going to school, you've got a lot of pressure on schools to cut costs on gas and on everything else, you've got pressures to get test scores up because we had you know we were competing with Russia right and we had reports...

JM: The cold war.

TS: The cold war but there were all these reports that we were a nation at risk and we had to do something so there's all these education reforms. And one thing that was happening was that we were consolidating our schools.

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There used to be a school in every little town and people would walk to it and suddenly we had roads and buses and all these kids going. So all these innovations came about and we were shipping kids far away on buses and consolidating these many schools into one. So it was kind of a collision of all these forces that led people to have this brilliant idea that we could save some money and get all these kids to these schools more efficiently...

Of course there was also bussing right, we know about the bussing issue in America and some of that had to do with desegregation so that's there too. We wanted to move people to different places far away from their homes. So anyway they have all these forces right. And people said we're spending all this money on bussing how could we do this for less?

Someone had this brilliant idea that we could take the same fleet of buses so schools wouldn't have to invest in so many buses and we could take a smaller number of drivers and we could recycle the same few buses over a longer window of time instead of say sending every child from kindergarten through 12th grade on one bus at one time, starting at nine o'clock and ending at 3:00 or whatever.

So that seemed brilliant so they staggered the schedule. Somebody started at 7:00 and somebody started at 8:00 and somebody started at 9:00.

It tended to be the older kids who went at 7:00 but that wasn't always true and there are still many districts where the younger kids start earliest. It's generally true that the older kids do but it could be any which way. If you look at different districts, these almost 14,000 districts, you see every kind of pattern you can imagine.

Some never did this at all, some still have everybody at the same time. Some have a window that you know is very short. They only have two bus runs, 8:00 and 9:00. Some of them have four bus runs you know ranging from 7:00 to 9:30.

They're all over the place and they changed them all the time but this all happened very quietly. There was also some pressure to increase the number of hours in the school day so they kind of crept the window, you know the window kept getting larger and larger and larger.

They tended to go earlier and earlier and nobody really thought it made much difference. But the irony was that in those very same years, the 70s and 80s, that's when Mary Carskadon was doing her seminal work on adolescent sleep and finding that there were changes in the circadian rhythms of not only human beings but some animals at puberty that shifted the window of sleep and wake cycles so that you know adolescents tended to fall asleep later. They just had trouble falling asleep as early and they had trouble rising as early.

And it wasn't due to cell phones and texting and electronics because she did these experiments also with primates and rodents who really didn't have any computers or cell phones.

They also showed shifted circadian rhythms, temporarily shifted, because when they hit adulthood their patterns went back to an earlier pattern.

So this is a really interesting example of the relationship between science and society because science doesn't instantaneously get into the heads of school officials. It takes years and years and years for what's going on in the lab first to get published and even to get out to your colleagues and then to get

into the larger scientific literature and then to get into the world of the media, the policymakers and ultimately the public.

It takes decades. And so even though the scientific world was beginning to understand that starting school so very early in the morning was contrary to the sleep needs and patterns of teenagers and young adults. Even though the sleep world was beginning to understand that, schools had no clue. It's not that they purposely ignored sleep science, they just didn't know.

It was in the early 1990s that the very first clue hit the even the medical establishment and the Minnesota Medical Association issued a recommendation that schools should start later because of sleep science. That was the very first time that you know there was a policy recommendation made on the basis of the sleep science but it was too late by then. That has to do with schools and their hours and the ways communities are so dependent and affected by the times public schools begin.

You know basically community life revolves around school hours. Any suggestion that you're going to change them in a public way will lead to incredible fear and outcry on the behalf of many members of the community. And that's the real dilemma we face.

JM: Yeah great, well that that's a brilliant potted history. I want to get back to the research, some of the research you mentioned. I don't like the term but we'll call it the 'sleep epidemic'. I don't like these sort of scare-mongering terms. There is a little bit of a crisis (that's another sort of scary word, but you know let's use that for the time being). There's a lot of data, there's a lot of research, to say that certainly in the last few decades, teens and adolescents - the numbers vary but I've seen age brackets between 14 and 24 and there's probably other age brackets people talk about - these teens, these adolescents, they just seem to be getting less and less sleep and it's worldwide.

I'd just like you to sort of explore some of the reasons for this, and there's many many reasons as you know. There's individual reasons, there's institutional reasons but I'd just like you to frame that. Because we're talking about Start School Later and this is one way to make a big difference. But the whole problem of teens and their sleep, it's bigger than Start School Later, isn't it?

TS: It absolutely is and I'm so glad you asked that. It's such an important question and it's important that people think about this issue in this larger way. It's true, you know there are many many studies trying to look at how much sleep teens, and frankly the rest of us are getting.

Every single one of them, no matter what the methodology, comes out with the same conclusion which is that we are incredibly sleep-deprived. Yes, it seems to be getting worse but these are very hard things to measure as I'm sure you've explored before. But it doesn't really matter because certainly at a certain point in science if you look at things from a number of different lenses over and over again and you keep getting the same conclusion, you can be pretty sure there's a problem.

You know we may not be able to put our finger on exactly how much sleep people are getting but we do know they're not getting anywhere near enough and they're not getting it in healthy ways. Because we also know that it's not just how much sleep you get but when you get it right and how consistently you get that sleep. We're finding whatever way we slice or dice it, we've got a huge problem, and our teenagers are not getting even close to what we think is necessary for healthy growth, development learning or long-term health.

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So we know it's a multifactorial problem, you're absolutely right. Obviously school start times are not the only reason that teenagers are not getting healthy sleep.

I think it's very helpful when I look at causes of societal problems, I often talk about dividing causes into individual factors versus systemic factors because they both play a role, but it's helpful to kind of divide things that way if you want to understand what's going on.

So individual challenges are obvious things like you have poor sleep hygiene, you know you're up drinking coffee at 11:00 p.m. and you wonder why you can't fall asleep. That would be an individual reason for a sleep problem, or you have a sleep disorder. You personally need to address your personal problem and that's affecting your sleep. But there are also many systemic challenges and those can range from really big ones like we have a society that has electric lights you know and we've lit up the night.

So it's very hard for all of us to follow our natural sleep patterns anymore. Another systemic problem might be our attitudes towards sleep, right. We have social norms about sleep where sleep is looked at as the sign of weakness and sleep is for wimps. If you don't sleep you're dedicated to your job. Those are also systemic factors that you personally cannot change, and they affect your sleep.

Other systemic factors would be things like, yes school start times or your work hours that you personally can't change but affect your sleep. Or exposure to computer light or screen light at night - it's not like the light in the society, it's your personal choice to be on this. But you might have to be on those things because your homework requires you to be on the computer.

Or another systemic problem might be a biological change which makes it harder to fall asleep when you're 15. If it's 9 p.m. at night, you just cannot fall asleep you lie there in bed. So I think it's really helpful to think about all of these causes. So I just named some of the causes right, biology, the light, the societal attitudes towards sleep, school start times, also like there's your homework and extracurricular and your job and all these pressures and then there's the individual things.

But there's two important points to take out of this. One is that, it doesn't really matter what you do with your individual problems if the systemic problems are still keeping you up. There's only so much that you can do personally.

So telling a kid go to bed earlier and don't drink caffeine late and make sure your room is cool and dark and comfortable and all that. That's great but they're still going to have problems with sleep if they have to wake up at 5:00 a.m. to get to school on time. But the other thing is of all of the systemic problems that I named, every single one of them, there is only one, only one, where we actually have empirical evidence that when you change it you impact sleep across the board, as well as many of the things associated with deficient sleep.

There's one of these social modifiable factors that we know can be changed with an impact and that is school start times.

Of everything else I name some of them just can't be changed like your biology. Yeah, we might be able to stop lighting up society but good luck with that. We might be able to change the other things. We haven't figured out a way to take screens away from everybody.

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But what we do know is that not only can you change school start times because it has been done but when you do, you have a measurable across the board population level impact on sleep as well as the science of depression, use of substances like energy drinks and caffeine, falling asleep in class, even say drowsy driving rates.

Those are actually measurable and that's why we're so focused on school start times. It's not because it's the only thing that matters and it's not because it's a silver bullet that will solve every problem, it's just that it will solve many problems and it's completely remediable.

JM: Yeah, we'd all like to change the world for the better. But the Start School Later movement is a very targeted, and as you say, it's an area where the research is clear, the science is incontrovertible and we know that if it can be pushed through it will make measurable changes.

Let's get to that in a second. But just in case anyone is unaware, this lack of sleep and these systemic things, they could apply to the whole population across all ages. But teenagers.... they say teenagers were only invented in the 1950s, you know with youth culture and pop culture.

But really, this age bracket, they've sort of got the short end of the stick haven't they, histo because the sleep research that's come out and it's only very recent really in historical terms, has shown that adolescent brains and in particular the physiology and the behavior to do with sleep is changing up until late adolescence until after your 20s.

But we've considered teenagers - whatever it is 16, 17, 18 - as adults and we've treated them just like they're adults. But as know, nobody doubts this now, nobody doubts the science. Teenagers' physiology, their brains are wired differently, there's a predisposition to sleep later.

I just wonder if you could break it down for the audience who may not be aware because... Funnily enough I was watching Wendy Troxel's TED talk about Start School Later and she said something just a little aside, that maybe this whole idea of the lazy teenager, these tropes, these myths are based on the fact that we've always treated teenagers like they're adults.

Buy maybe the whole idea of teenagers being moody and irrational and all this kind of stuff is basically because we haven't respected their different sleep needs.

TS: I am so glad you raised this because it's something I often forget to mention and it's important. The attitude about teenagers as sort of sweaty, pimply, awkward adults. It's a real problem not only in terms of people really recognizing this problem but in being willing to care about it and remedy it.

But yes as Wendy points out so articulately, there are real physiological differences between the teenage brain and the adult brain. Not just in terms of sleep but in everything. You know we've begun to understand that I'm sure people have heard about it in areas about the development of the prefrontal cortex, and judgments in teenagers. But the research that started with Mary Carskadon's lab in the 70s and 80s showed again that there were different sleep needs and patterns.

Every study that's been done to date shows that as you mature, the amount of sleep you need changes throughout the lifespan you know but there's a distinct period.

I just wrote a chapter with Amy Wolfson for a book that's going to be published by Oxford University Press on sleep. We wrote the chapter on adolescents and young adulthood so we address this issue

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right in it and we look at the fact that in these years the sleep needs are distinct. It's a distinct developmental period where they need a little bit less sleep per night than younger children but they certainly need more than when they hit the mid-20s.

Again that the pattern is shifted so that they have later fall asleep and wake times due to changes in the homeostatic and the circadian patterns of sleep and adolescence. So there are really measurable, physiologically, measurable differences in this age group. So it is a distinct developmental stage and that's how people think about it today.

The reason I think it's so important to bring up is that I think a lot of people, scientists or otherwise, forget that these are what we're talking about our people who are still children in many ways. They're still growing, they're still developing and unfortunately they're not as cute as six year olds and in fact, as Wendy points out, they're often very unpleasant to be around and certainly the sleep deprivation contributes to that.

Because everything we know about sleep deprivation makes teenagers do what we think of teenagers doing even more, right. They're even moodier. Their judgment is even poorer you know it just goes on and on.

JM: Well it's a chicken or egg the situation isn't it?

TS: Exactly. Well often they tell you with a teenager you look for signs of depression for example and you say well gee, every teenager I know behaves this way.

How do I tell if it's depression or if it's just sleep deprivation or you know a combination? It's very very hard to tell. It's very hard for the parents. But people are very unsympathetic to our work and Start School Later a lot of the time because they think that if we move the high school start times later the only solution would be to move the elementary schools earlier and they worry about the little children having to go to school so early in the morning.

And they'll say well my little child will have to wait for the school bus in the dark, you know, school goes later that the child will have to walk home in the dark because you're gonna push everybody later and the little kids will get out at five o'clock.

We say, well right now you've got teenagers waiting in the dark and walking home in the dark but it doesn't have the same resonance with people because these are teenagers.

JM: Yeah, we think they're adults and because they can reason - maybe their prefrontal cortex isn't fully formed so their powers of reason aren't quite there yet - but yeah we think, you know this is a six foot tall guy. He's an adult, just deal with it, you know stop complaining.

TS: Just deal with it.... and you know get ready for real life, and, you know and I did it. And no sympathy for them and I've had so many people call me and say I just throw a bucket of water on my kid, what is your problem. So they don't tug at your heartstrings and it's a real problem.

JM: Yeah, but the fact... as I said there's so much so much research in this area. I think broadly speaking National Sleep Foundation guidelines for adults adults are between 7 & 8 hours, but teens is around 9 hours, it's about an hour more.

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These changes in the circadian rhythms as you described is a shift, a literal shift, a chronotype, which is the term we use to refer to larks and owls and all. In a sense teens turn into owls by a degree of about two to three hours which is a lot.

TS: It's quite substantial and even people who are naturally larks are still going to be shifted by two to three hours. So that for most American high school is going to be far too late in the morning, a natural wake time to get to school on time. I think people also forget that if school starts at 7:00 that often means the wake time of 5:00 a.m. or even 4:30.

We've got buses coming - I think when Phyllis was on your show she mentioned we found a bus that started at 5:23. I'm sorry to report that since then we've had a number of people call us about 5 a.m. bus pickups.

The thing is that there is no limit to it. That's one of the issues. Even if you don't agree with any specific time surely there's some time that is too early for school. If you know anything, even common sense tells you that forget about sleep research.

But at the moment nobody will put a limit on it, so although we are I think making great progress and awareness about this issue and I do think many many schools are looking at this issue more than ever before, at the same time every year I see some schools start even earlier.

JM: Yeah, there's always gonna be people who just go the other way for whatever reason. But I think it's making a difference. I mean it's we've been here for the last seven years writing about sleep and certainly the coverage is getting more and more, and more people are talking about it. But I just wanted to say that even though we're explaining this in quite sort of horrific terms in the US, there's some places in the world it's even worse, isn't it? Can you just give a couple of examples? I know Korea for example...

TS: Well South Korea comes to mind immediately. So at Start School Later we do get inquiries from all over the world, so it's certainly on my mind that this is a global problem. And yes, some societies are even worse because you know they've been doing some studies using actigraphy on teenagers all over the world and they actually can see what time kids are falling asleep at night and how many hours they're sleeping.

If you want to talk about horrific, you should look at some of that data and South Korea wins the prize. I think average sleep is in the five hours or something range, it's terrifying. But there are people trying to address the issue. Obviously there's a culture of sleep deprivation but the schools are starting very early, 7:00 a.m. is quite common. And many of them are up quite late with school activities too so they're getting it from both ends.

JM: Yeah, I think in Korea there was a big sort of societal push, an education push. Which meant that kids were doing a lot more, spending a lot more time at school and doing homework and became more competitive but they're going to bed after midnight.

TS: Absolutely I said that I mean that average fall asleep time was terrifying. I'm sure it was after 1:00 a.m. in South Korea. You know and why that is? There's a lot of factors as we talked about. You know it's a cultural as well as a school related thing. There are all kinds of reasons and they're not the same but yeah it's definitely a global problem.

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I think it's ironic of course because a lot of it is done to increase test scores but we know that when you get sleep, oddly enough, you also improve your school performance. But there is this belief, we all believe it you know we're all victims of this belief. It's hard not to. That sleep is the first thing you give up when you're in a time crunch and you shouldn't but it's just an impulse.

So it's very hard when your family and your school is telling you this is a good thing to do. But we are certainly sending our children the message that sleep doesn't matter when we require them to be at school at these times.

I was just gonna say one other thing which you may or may want to build in but when we were talking about people not caring about teenagers I just wanted to make one other point before we go on and that is whatever you think about teenagers or this whole business of whether they should be indulged with enough time to sleep or to sleep at the right times.

You know ignoring them and thinking that they're just young adults or just adults has an impact on it *all* of society because of the effect on driving and I think people forget about this.

We are putting these sleep-deprived... whether they're teenagers or adults or however you view them, they're on the road and we're putting these absolutely sleep-deprived people on the road every day. We know that that is going to affect everybody in society whether you have a teenager or not. You are at risk because we're we are basically forcing by law sleep-deprived people out in the car.

Parents are putting kids in cars as though they just had a six-pack of beer basically every morning.

JM: Absolutely. And this is why we need to frame this as you say as a public health issue. You touched on some of the points before as well. The consequences of just letting this ride, this idea of teens getting up really early, accidents, you know driving accidents. You mentioned substance abuse, maybe not doing hard drugs but just energy drinks and caffeine and stimulants and some people taking sleeping pills as well as some teens you know to get into sleep at night.

TS: Melatonin and Adderall use you know is definitely related to the sleep deprivation. They use it off label. They trade it with their friends. I know many parents who have put their kids on melatonin every single day all through high school and that's an unregulated substance. We have no idea what long-term effects are at all.

JM: No. Okay, well I think we've built a good case...

TS: I hope so. I had a willing audience here but thank you, yeah.

JM: So let's talk about the movement. It's very much a grassroots movement like a lot of public health issues, how they start and they slowly slowly build up. As you said we talked to one of the members in one of your chapters, the founding members, Phyllis Payne earlier and I believe, correct me if I'm wrong but the start school item movement, the first body that started making any serious ripples was this organization SLEEP in Fairfax in Virginia. Is that right or are there any kind of earlier roots than that?

TS: I would say that's not completely accurate. I think that there were parallel movements in many communities starting in the 1990s but mainly in the 2000s. And let me tell you what's very interesting about this; actually the original impulse to Start School Later was not a grassroots movement from people like me or parents or communities, it was coming from the schools themselves.

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In the late 1990s many American public schools looked at the research, at the recommendation that I mentioned to you from the Minnesota Medical Association Kyla Wahlstrom's early work. I'm sure you know Kyle Wahlstrom who did a lot of the early impact studies. She was at the University of Minnesota and she looked at what happened when Edina Minnesota and Minneapolis which were two of the earliest school systems to make a change based on the research.

She looked at what happened. You know she didn't just say what's happening from starting early she said what happens when we move later. So her work, she was an educator and an education policy leader. So some schools started saying we need to move later.

If you go into the records of many school systems, the school leaders were trying to make this change in the late 1990s, early 2000s. They quickly found that this was a hot potato political issue that when they suggested moving bell times and announced it - because you know they were going to do this because this is what the sleep research said - he public went ballistic and they backed off.

Now at that point, that is what prompted many of these grassroots movements to start. They became aware that yes, they listen to the rhetoric that was coming out of their school leaders which by the way cited the same research we cite now, we just have much more of it about.

Why this was ridiculous, to require teenagers to be in class at 7:00 or 7:30 in the morning. I have found in the course of running Start School Later that there were parallel movements going on all over the country. So when I moved to my school system, I moved in the year 2000 from where I was living in Illinois and then I moved to Maryland with my three kids, my husband who had been a school board member at various places.

They were having this debate that in the year 2000 and it was run by the school system and they were going to do a pilot program and it failed at the last minute. When I joined the citizens advisory committee when my oldest child was maybe in seventh or eighth grade about to go into high school, I was told by the leader, this is before SLEEP, you know this is 2002 I think, that this was our number one priority - getting these bell times changed.

That was in Arundel County, Maryland in 2002. I met people who had been involved in this five, six, seven years earlier. When the school system first started looking at it their kids were already graduated. Subsequently I found out that there were people like me and citizens like me all over the country doing things in parallel. Phyllis was one of them.

JM: So these grassroots movements, were they essentially independent and uncoordinated?

TS: Yes, that's precisely right and I think that is truly one of the real signs of progress in the movement. Frankly the beginning of what I would call a movement was this realization that we needed to join forces.

That having all these grassroots movements in every school system arise out of nowhere . Maybe they last for three four years, the cohort of parents and kids graduate, the school system breathes a sigh of relief they're gone.

A few years later another one arises like a phoenix you know there's no historical memory. That was going on again and again and again. It was so sad to see and they'd make the same mistakes. Waste all this time and we'd go nowhere.

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Meanwhile the sleep research community is writing these wonderful papers but not talking to these advocates. And the pediatricians are saying yeah yeah yeah, you ought to start school later but they would just say to their patient 'do it' but they wouldn't speak out.

So nobody's talking to anybody else. Meanwhile the school leaders all kind of go 'please don't raise this issue. I don't want to touch it with a ten-foot pole. Please no, because you're going to lose your job, you're not going to get reelected.'

So basically what Start School Later as an organization has done, and I really think this is our greatest contribution, was bring all of these silos together both across the country you know at the same level as well as in a vertical fashion. Bringing the researchers and the policymakers and the clinicians and the community advocates all together and sharing our historical memory, our research database, strategies, as well as providing moral support, of course publicizing this, bringing this out. I think that's what's really going to accelerate and it has been accelerating, the movement, but that's the change.

JM: Yeah, so this was 2011, is that right?

TS: That's when we formed as a group. I started an online petition and that was really the beginning of things. That's when I started realizing it wasn't just my little county, it was the entire country. I got signatures from all 50 states. I started getting calls from the national media and I started meeting crazy people like me around the country who were devoted and realized that if we didn't stick with this beyond our own children it was never going to go anywhere. That they've sort of formed the core team of Start School Later.

JM: Well I can imagine that being very encouraging - literally 50 states and you're thinking wow this is everywhere and you brought it all together. So the website is startschoollater.net and it's just chock-a-block. You've got chapters all over the country.

Anyone that's interested in there, visit. There are tons and tons and tons of resources and all the developments have happened, all the changes you've made, all the research is in there. But what I'm getting at is you must feel there's some real momentum happening now. The movement was there already and you've just brought it together. You're one of the co-founders, aren't you?

TS: Yes, so I started the petition and frankly I sort of did that on a whim. My husband is a political scientist and he was very excited when President Obama started these online petitions which I know you have in the UK and there was an exciting petition about this issue.

He said Terra why don't you start one on your favorite issue? And at this point my youngest child was a junior in high school, his second to last year. I had pretty much given up on this but eventually I thought you know I'm a writer, I sit at the computer all the time. I can start an online petition because you had to get 5000 signatures in 30 days and they said that the Obama administration would address your issue.

I thought I can spend 30 days using social media to publicize this. I sit here and push buttons. What happened was that they had a lot of technical glitches on that website as the United States government has with many of its websites, the health care system being another example.

Basically I couldn't even get my own mother to figure out how to sign, so that tells you how bad it was. I did get about nearly 2000 signatures but not the 5000 needed and after 30 days the whole thing was

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just eviscerated, it just disappeared into the ether. But the very same day I got a phone call from a reporter in California realized that I did have signatures from all 50 states on it.

I got a call from Maribel Abraham who was a reporter for this little local online newspaper in my town. She was so excited by this because I had publicized it a bit in that paper. She said Terra you can't let this go. You have so much momentum. We have to start another petition and keep this going and we should start an organization. And that's exactly what we did.

We only started it around a kitchen table with a few people who had signed and we reached out to some of the people around the country who had seen our petition and that was the beginning. We had no funds and we relied completely on social media and it grew.

We became an official nonprofit organization in 2014 and we now have close to 130 chapters. We have board members, I'm sure you've seen, from many prestigious institutions and very prominent sleep researchers and clinicians and educators.

We had a national conference which was so exciting, bringing all these people together for the very first time. You know you would see these prominent sleep researchers with tears in their eyes because they were hearing how their research was affecting this local school board member.

They had never actually seen that before. It was fantastic. Now we have workshops around the country helping districts do this. We've created an online sleep education program which is being used in colleges around the country. We're developing a high school version. I think every Harvard first-year student used that program last fall, they'll be using it again. So it's really exciting.

So we see ourselves as a clearinghouse for information, a repository of the institutional memory, you know resources for anyone working on this and it's just been wonderful to see that. I think that's real progress but you know public health reform is a slow process I mean we have to understand that.

It isn't accomplished through one action. There's going to be a variety of actions. Some of them are this education and this outreach and some of them are going to be many other things including legislation so we can talk about that. We work on that as well. We've had a lot of progress along those lines.

JM: Yeah, something mentioned just a while ago it was a very important point. You were saying that parents initially were getting involved, but then their kids grow up and they're thinking, okay well it's not such an immediate issue now. But now we've got a movement doing the Start School Later website, all of the different areas you get involved in.

So now it's a thing that people can't ignore and it's not going to go away. You've had quite a few success stories so far. I want to talk about this bill that's going through the Senate at the moment. But can you just do a little bit of boasting for and give us a few success stories just as show it's making a dent.

TS: Absolutely. So we have a page on our website called success stories which lists many of the districts that have come to our attention that have managed somehow to find a way to run their schools at safe healthy ours. It's not really rocket science. They found it, they found a way to move forward.

Every year we collect a list of schools that have come to our attention, that have moved later at least in part because of sleep science. Almost every year I find schools in at least 20 or so states that have done this and this is just the ones that happen to make the newspaper you know.

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Not everybody announces it, some just do it quietly. So we're seeing a huge number of districts that are actually doing it, there are even many more who are looking at the issue specifically because of sleep science which is great for anyone in the sleep field to know.

I think this is one of the breakthroughs we've seen is that people who work in the sleep field are starting to realize that this is good for sleep. You know the more we call attention to the school start time, the more people have to realize that sleep matters.

Because frankly one of the things that blocks change and you if you've seen my talks you've seen me talked about this before, but there are only really three things that are blocking change.

One of them is that pure human fear of change, right. Another is a failure of imagination. What I mean by that is that people come up with all these speculations about how, if you move the bell time then sports will be later and that's gonna be a disaster because then it'll interfere with dinner or somebody can't pick up someone.

It's a real failure of imagination because they don't understand that actually this is a system and when one thing changes other things also change and these things adjust. There's not just one way things work out.

But the third factor, and this is where what I was getting at, the third factor blocking change is fundamental ignorance about sleep though. The failure to understand anything about it or to think that it matters. This is why I think anyone in sleep really should be thrilled with this movement because our primary goal is to get people to understand that sleep matters and frankly once they understand that fully then all these objections just melt away.

They seem very very silly suddenly. If you fundamentally accept that high school kids really cannot function or be safe if we require them to be in class at 7:00 in the morning. If you fundamentally understand that you will sound silly talking about well how's it gonna affect my soccer practice. You don't talk about fundamental things. And the more people appreciate that sleep matters, the better for everybody in sleep.

JM: I mean, on so many levels it's a no-brainer. Not only have we got all the science, not only have people you know... I think there was a study last year, or quite recent, in Washington I think, where they tracked the changes before and after changing the school start times and everything improved.

The kids were getting more sleep, the grades improved, attendance improved. Not only we've got that evidence you know the sleep science says we'll have all these improvements in mood and everything.

TS: I was just going to say I think that's what has really changed in this field you know in the 90s. In the early 2000s we knew it was bad to start early. We didn't actually have evidence that when you change you get success and it's extremely consistent. You know when school starts later more kids get more sleep period. We know that. That doesn't mean that every kid gets more sleep. It doesn't mean it's a silver bullet across the board.

You can choose not to get sleep whatever time school starts. But on a population level when school starts later, more kids get more sleep and as you've mentioned, study after study shows that many of the things associated with more and better sleep also improve. Most strikingly the things you mentioned

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less use of substances, fewer signs of depression, lower rates of car crashes, also better attendance higher graduations, the suicidal ideation goes down absolutely.

So it doesn't mean that for every child every day, it just means on a population level this happens. It's enough, the evidence is so strong that so many major health and civic and education but particularly Health Organizations have issued these policy recommendations that no middle or high school start before 8:30 a.m. They wouldn't make these recommendations if the body of research were not so compelling. Not only that this should be done but it can be done and it works.

JM: Let's talk about this thing. I see it trending, or not trending but I see the hashtags coming from Twitter quite a lot. SB328. This is something that's got a lot of momentum behind it. Can you explain how this is going through in California and where we're at and you're sort of appraisal of the changes that you think it could make?

TS: I will do my best. Even though I'm married to a political scientist, American politics is very confusing. Just to give you a little background; yes it's a very very important and exciting piece of legislation.

We have a state system as you know in the United States and every state kind of does its own thing and every school in this country in every town and community makes its own rules but they are regulated to some degree by the state departments of education and the state that they are in and then at a larger level sometimes by the federal government.

But what gets regulated by whom is always a source of contention and everyone wants to make things as local as possible. But sometimes when there are matters of public health and safety these things have to be dealt with beyond the local community. So we have laws about removing asbestos in schools or more controversially as you know about vaccinations or about food safety or even the number of hours that students have to be in class. These are all regulated at the state or national level because local communities have proven themselves unable to protect basic health safety and human rights on some issues.

Now in the issue of school start times, a lot of people say well this is a prime issue where we've seen despite 25 years of clear research and calls from major major medical, health, civic and education organizations, most local districts have not made the change or even if they want to have been unable to. So there have been calls to have legislation at the state level and actually there have been bills in about 17 states in the past five six years and some of them have passed.

We had two past in Maryland, there's been a two bills passed in New Jersey, a few other states have passed bills. But none have been as exciting as this California bill SB328 because that is the first bill that isn't just a study or an incentive program, it is an actual mandate. It's a parameter that is at the level of the state that says no high school can require students to be in class before 8:30 and no middle school before 8 a.m.

JM: They have to do it.

TS: So they have to do it. Now that doesn't mean of course that an individual teacher or child or class could not say you have to be here at 7:00 for band practice but that's optional. But it does mean that you cannot legally require kids to deprive themselves of sleep to go to school or to graduate. And that bill, no bill of that nature has ever even made it out of a single committee, legislative committee, which

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is the first step in a legislative process in the States. This bill last year, last year's version was passed by the full legislature and most bills that are passed become law they just need the signature of the state governor.

But in a big piece of news and a big surprise at the end the governor of the state of California Jerry Brown vetoed the bill. The reason it was vetoed is related to why we needed the bill in the first place ironically because there are many forces, vested interests who either because of myth or misperception or true perception of their convenience with the status quo don't want school hours to change. And that's why of course we need a bill. That's why we need legislation because it's these very same groups that are blocking this change at the local level.

So there were some very ugly politics which I really don't want into but you can delve into them. But some extremely powerful and well-funded opponents got the governor to veto it. It's a David versus Goliath situation, that's truly.

JM: I don't want to tread on anyone's ties or go into. But are we talking status quo interests?

TS: We're talking status quo interests for people who for their own understandable reasons do not have the good of society and children as their fundamental impetus. The problem is in all of these kinds of political battles everybody's fighting for their own interests, but who's there to fight for the children.

This is why it's so important of course to have an organization like Start School Later because there really is nobody with an economic interest over the long term in pushing this change.

JM: If I can pause you there, something we didn't bring up, these economic objections and people say it's going to cost more for buses and everything. There's been huge studies on the economic benefits to Start School Later. There was a big RAND study a couple of years ago that said it's gonna actually add billions over a ten year period.

TS: Absolutely and of course that's Wendy Troxel and Marco Hafner's study at RAND and this is where you have to... and I'm not an economist so I'm gonna start with that.

But I've been told by economists that the way you have to think about this is that if you're a local school board your economic interest and your interests are not the same as say the interests of the larger society.

So the Rand study was looking at the benefits to larger society. They were looking at the trees and drowsy driving accidents, they were looking at an increase in the workforce from higher graduation rates.

For the larger society it's a no brainer. By starting schools too early we're hurting our state, we're hurting our society and they quantified that.

In fact their estimates were under estimates if anything because they only looked at a couple of benefits. They looked at costs that don't even always exist. But if you're a school board, your job isn't to prevent drowsy driving accidents, your job is to give the graduation rates up. Yes, so that would help.

But your real job is to keep the school budget in line and to keep the teachers union paid nicely and all these other forces. And if you are considering school start times along with all these other things which

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are legitimate things to consider, if it's just another line item on the budget, the loudest voice is going to get heard.

But what I have constantly tried to convey is that if you start viewing this issue as a public health issue rather than a negotiable school budget issue everything flips because the decision maker is no longer the local school board.

Why should a local school board be making a public health decision? That's not their province. It's a decision of society and the state legislature being the representatives of society's general interests.

For the good of the public health and safety and the state budget, yes, it's a no-brainer, it needs to be done, this is easy. If you're a school board member though or superintendent that's not your job, those aren't your issues. So we need to take it out of the hands of the local school boards if it really is a public health issue. It should be considered by the larger society, and that's why state legislation makes a lot of sense.

JM: This California bill that's going through, as you say, it could be a bit of a touchstone by all the indications that I've seen so far. Is that your perception?

TS: Absolutely. First of all it addresses the fundamental problem which is that many local districts would love to do this, they just can't. Many superintendents have told me and I know have told the senator who has introduced the bill that they would secretly love there to be a mandate from the state.

Because then all those obstacles those people coming at them with pitchforks would go away. They have no excuse, it's just the law. We have no choice in the matter. We can't start school before 8:30. So there's this kind of a dream on the part of many school leaders despite what they may say publicly, it would solve a lot of the problems.

It's also, ... I mean 8:30 is not necessarily the best time. We know there's a movement in the UK to make it even later, it's just a floor, it's just an absolute floor. And the state sets floors on all kinds of things. T

hey say how many hours you have to be in class, they don't say exactly what those hours are but they do say you know you have to have at least 6.5 hours in the classroom or you have to have at least 180 school days per year, pick your 180 days.

There's nothing wrong with the state setting these parameters and it would be a basic child protection measure. And because if it were done in one state, many other states are looking at this. There's similar legislation being considered in several other states. If they see one state can do it, there's likely to be a domino effect.

You know the eyes of the nation are definitely on California which is always an influential state and often is the first to go with a break through, public health or public safety piece of legislation.

This bill has actually already it's been reintroduced. It was modified slightly to appease some of the opponents. The senator is definitely interested in making this work. There's a long time allowed for adjustment you know. Nobody is imposing this on anyone in a way that's going to be onerous or impossible and it has already passed the state senate. In order to become law it has to be passed by the full assembly which is the other house in California.

JM: What's the time frame on that?

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TS: It has to be passed by September 15th and signed by the governor by October 15th. It was just last week passed through the Education Committee of the assembly which was a huge milestone because that was a very challenging step. It will go to appropriations but that shouldn't be a problem and then it has to be passed by the full assembly and signed by the new governor.

So different governor, so we hope this time we've sent the message that this is basically a child protection public health measure and it does not tell local school systems what time to run class. It doesn't impose on their local control at all. It allows them to run class at whatever time they want as long as that time is sleep friendly, safe and healthy.

I think that people are very excited about it because it makes a lot of sense for everyone. It would make life easier for the local districts to prioritize sleep and health and safety which is very hard for them to do when have to make these decisions.

JM: Just to clarify that, you say they can set their start times but am I correct in saying it's got to be an 8:30 minimum?

TS: That's right for high school, 8:00 for middle school and they can do what they want with elementary school. And this is not end of the line, there's other work that can be done. But it definitely sends a very strong message that this sleep research is real and it affects people's fundamental health and safety.

JM: Well it's all very exciting. If it goes through it set the legislation have to be enforced by 2021, is that right?

TS: I am not positive. I think it's three years after passage. It might be 2022 now because the bill was updated. But there will be lots of work going on, yes, you know people will start rolling out.

You know one of the things we know is that to make this change happen effectively you have to spend time working out these details. It's not that life will collapse but there are genuine concerns and logistical changes and people do need support and help and that some creative thinking is needed to do things in a different way. Society will adjust to school hours but it doesn't happen in two seconds. So they want to give each community a time to adjust and to come up with ways to resolve some of the issues because there will always be issues if you change schools start times. I think so it's very reasonable.

JM: Yeah, absolutely absolutely, these changes aren't huge.

TS: No, they're not huge at all. In fact the average California school start time right now or high school start time is 8:07. So we're hardly talking you know some massive change. Parents go through much larger changes you know all the time about what the times their kids go to school. It's just the idea of it that gets people crazy.

JM: Fascinating to hear all the details and kind of the inside story of start school late as well. And anything we can do, Sleep Junkies, we've been waving the flag with you guys for a while and more than happy to help support you guys and push the message. I think that the snowball is rolling down the hill and it's getting bigger and bigger and bigger and hopefully fingers crossed and let's push this 328 bill through this time.

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TS: Any help you can give us is greatly appreciated and just keep waving the flag. We're absolutely thrilled and we also watch what's going on you know on your side of the pond as well which is also exciting. But it is wonderful to have your support and thank you for your interest.

JM: It's been great. Thank you so much, Terra. I really appreciate your time today.

TS: It was my pleasure.

JM: Fantastic. Have a great day.

TS: Thank you. You as well.