Welcome to the Uberman Lab podcast where we discuss science and science-based tools for everyday life. I'm Andrew Huberman and I'm a professor of neurobiology and ophthalmology at Stanford School of Medicine. My guest today is Dr. David Bus. Dr. Bus is a professor of psychology at the University of Texas Austin, and he is one of the founding members and luminaries in the field of evolutionary psychology. Dr. Bus's laboratory is responsible for understanding the strategies that humans use to select mates in the short and long term, and he is an expert in sex differences in mating strategy. His laboratory is explored, for instance, why women cheat on their spouses or their long-term partners, as well as why men tend to cheat on their spouses and long-term partners. He's also explored a number of things related to the courtship dance that we call dating and securing a mate, including the use of deception related to proclamations of love or promises of finances or sexual activity. Dr. Bus's laboratory has also evaluated how status is assessed, meaning how we evaluate our own worth and our potential as a mate, and who is, let's just say, within range of a potential mate, both in the short and long term. For instance, today we talk about how people don't just make direct assessments of their own and other people's value as a potential mate, but also using the assessments of others to indirectly determine whether or not they stand a chance or not in securing somebody as a short or long-term mate. His laboratory has also focused on some of the complicated and varied emotions related to mating love in relationships, such as lust and jealousy, and he's extensively explored something called mate poaching, or the various strategies that men and women use to make sure that the person that they want to be with or the person they are with is not with anyone else or seeking anyone else, and indeed that other people don't seek their mate. Dr. Bus's work also relates to how biological influences, such as ovulation or time within the menstrual cycle, influences mate selection or tendency to have sex or not with a potential short or long-term mate. And more recent work from Dr. Bus's laboratory focuses on the darker aspects of mating and sexual behavior in humans, including stalking and sexual violence. Today, we discuss all those topics. We also discuss some of the strategies that humans can use to make healthy mate selection choices and for those that are already in committed relationships to ensure healthy progression of those committed relationships. In addition to publishing dozens of landmark scientific studies, Dr. Bus has authored many important books. A few of those include the evolution of desire and why women have sex. And his most recent book is the one that I'm reading now, which is called When Men Behave Badly, the Hidden Roots of Sexual Deception, Harassment and Assault. And it's an absolutely fascinating read. It has endorsements from Dr. Robert Sapolsky, Professor at Stanford, who's been on this podcast as a guest before, as well as Stephen Pinker and Jonathan Hate, who wrote the Coddling of the American Mind. It's a really important book, I believe, and one that doesn't just get into the darker aspects of human mating behavior and violence, but also strategies that people can take to ensure healthy mating behavior and relationships. There's so much rumour speculation and outright fabrication of ideas about why human select particular mates in the short and long term, what men and women do differently and so on. What I love about Dr. Bus's work is that it's grounded in laboratory studies that are highly quantitative using rigorous statistics. And so throughout today's discussion, you'll notice that I'm wrapped with attention trying to extract as much information as I can from Dr. Bus about the real science of human mate selection and mating strategy. I'm certain that everyone will take away extremely valuable knowledge that they can use in existing or future relationships from this discussion with Dr. Bus. Before we begin, I'd like to emphasize that this podcast is separate from my teaching and research roles at Stanford. It is, however, part of my desire and effort to bring zero cost to consumer information about science and science-related tools to the general public. And now my conversation with Dr. David Bus. Well, David, delighted to be here. I've followed your work for a number of years, and I'm excited to ask you a number of questions about these super interesting topics about how people select mates, how they lie, cheat, and but also behave well in this dance that we call mate choice. Yes, yeah. Fortunately, there are there are well behaving Cubans in the in the mix here. Good to know. Just to start off, perhaps you could just orient us a little bit about mate choice, you know, some of the primary criteria that study show men and women use in order to select mates both. Should we call them transient mates as well as lifetime mates? Right. Well, that's a critical distinction because what people look for in a long term committed mateship, like a marriage partner or a long term romantic relationship is different from what people look for in a hookup or casual sex or one nightstander, even a brief affair. So, so that's actually critical. I wonder if we can maybe just back up a second and just talk a little bit about the theoretical framework for understanding mate choice. So it basically stems from Darwin's theory of sexual selection. And most people when they think about evolution, they think about cliches like survival of the fittest or written nature red and tooth and claw. And Darwin noticed that there were phenomena that couldn't be explained by this so called survival selection. Things like the brilliant plumage of peacocks, sex differences like in you know, stags, for example, have these massive antlers and the females of the species do not. And so he came up with the theory of sexual selection, which deals not with the evolution of characteristics due to their survival advantage, but rather due to their mating advantage. And he identified two causal processes by which mating advantage could occur. One is intracexual competition with the stereotype being two stags locking horns in combat with the Victor gaining sexual access to the female loser, ambling off with a broken antler and dejected and low self esteem and needing psychotherapy, perhaps or or mate, mate, mate value improvement therapy. And the logic was whatever qualities led to success in these same sex battles, those qualities get passed on in greater numbers. And so you see evolution, which is change over time and increase in frequency of the characteristics associated with winning these what door and call contest competition. And we know that logic of that is more general now and involves things like in our species competing for position and status hierarchies. So anyway, so intracexual competition is one, but the second most relevant to your question about mate choice is preferential mate choice. So the second question is that the second question is that if members of one sex agree with one another, if there's some consensus about the qualities that are desired, then those of the opposite sex who possess the desired qualities or embody those desired qualities, they have a mating advantage. So if they get preferred, those lacking desired qualities get banished, shunned, ignored, or in the modern environment become in cells. And so the logic there is very simple, but also very powerful. Whatever qualities are desired, consentually desired, if there's some heritable basis to those, then those increase in frequency over time. And so and in the human case, these two causal processes of sexual selection are related to each other in that the preferences of the mate preferences of one sex basically set the ground rules for competition in the opposite sex. So if for example, hypothetically, women preferred to mate with men who were able and willing to devote resources to them, then that would create competition among men to claw their way, you know, and beat out other men in resource acquisition and then displaying that their willingness to commit that to a particular woman. And same with women, though, and this one of the interesting things about humans is that we have mutual mate choice, which is not true in all species. So and that is that it's not just a matter of, you know, you selecting someone to be your mate, they have to reciprocally select you. And so with mutual mate, mate choice, we have both preferences, mate preferences that women have and mate preferences that men have and consequently competition among men for access to the most desirable women in competition among women for access to the most desirable man. So that's sort of a little bit of theoretical backdrop. So you asked, well, what are the qualities that men and women desire and maybe we'll start with long term mating and then shift to short term mating and long term mating is is interesting in and of itself in that it's very rare in the mammalian world. So there are more than 5,000 species of primates of which I'm sorry, more than 5,000 species of mammals of which we are one. But the percentage of mammals that have anything resembling like a pair of bang on the long term mating strategy is about three to 5%. It's extremely rare and even our closest primate relatives, the chimpanzees. They don't have a long term mating strategy. They don't have anything resembling parabond and mating in the chimps. The females come into estrus almost all the sexual activity occurs during an estrus phase after that males and females basically ignore each other for the most part with some some exceptions. But with humans, you have the evolution of long term pair bonding attachment, heavy male investment in offspring, relatively concealed population. And so these are kind of unique aspects of the human mating system. So to get to your question, so what are the qualities? So the best, the most large scale study that's been done on this is study that I did a while back of 37 different cultures and it's not been replicated by other researchers. But basically what we found is three clusters of things. We found qualities that both men and women wanted in a long term mate. We found some qualities that were sex differentiated where women prefer them more than men or men prefer them more than women. And then we found some attributes that were highly variable across cultures in whether people found these as desirable or indispensable or irrelevant in a mate. And so I could give examples of each of these if that. Yeah, that would be great. I'd love to know what some of the common themes were across these cultures in terms of what what's being sex mate and sexually selected for. Yeah, so so some of the things that were so you've talked about universal desire so things that men and women share. There are things like intelligence, kindness, mutual attraction and love, which is really kind of heartwarming because some people think that love is a recent Western invention by some European poets, but it turns out it's not true. And so they're the clunges on in Botswana and they describe pretty much the same experience as a falling on love as we do and even describe the distinction between this kind of infatuation stage of love and the attachment phase where you know you can't maintain this frenzy of infatuation and obsession for very long. So, yeah, so, so mutual attraction love. Good health. Emotional stability, although there's a bit of a sex difference there with women preferring it a bit more than men. And so basically and these may seem obvious so no one wants a stupid mean ugly disease written mate and so perhaps obvious but but no one do this in advance of the 37 culture study. These were some universal preferences so you go to the Zulu tribe in South Africa or you know Rio de Janeiro and Brazil or Portugal or Oslo or anywhere in the world and these are qualities that people universally desire in long term mates sex differences so sex differences basically fell into two clusters. Women more than men prioritized good earning capacity. Slightly older age and the qualities associated with resource acquisition so these are things like a man's social status does he have drive is the ambitious. He has a good long term resource trajectory is one way that I like to phrase it because women often they don't look at necessarily the resources that a guy possesses at this moment but what is his trajectory. Just sorry to interrupt but may ask is there anything known about the commonalities of how that is assessed you know is it you know he's rolling out a bed early and running eight miles he's showing proficiency in school he handles himself well socially at parties is drinking too much but knows when you know obviously they're integrating multiple cues the brain is a complex place but is there any information about what. Those variables are across cultures yeah well I think that there's been less attention to that so that's a great question one of the things that we do know across cultures is that women attend to the attention structure so the attention structure is a key determined of status so that is people who are high in status are those to whom the most people pay the most attention so the attention of others to them not how well a given potential mate can focus and pay attention yes yes exactly and but but but women look I mean you know is the guy even in the modern environment is the guy spending eight hours a day playing video games eating cheetos and drinking beer or is he devoting effort to his professional development. So hard work ambition does he have clear goals or is he in an existential crisis not knowing what he's going to do with his life so those are some of the qualities that that that people look for and also women use what's called in literature mate choice copying and this is related in part to the attention structure that is guys who have passed the filters of multiple women those are like pre-approved pre-approved and so we've done studies where you just take a guy photograph him alone versus take the same guy put an attractive woman next one or put two women next one and women judge exactly the same guy to be much more attractive if there's if there is paired with women then if then if he's not and so and some guys exploit this in the modern world by hiring wing women to go with them and dates and so forth this is my my sister former girlfriend or whatever so but but but you're correct in the in the women use multiple cues to assess these things and they change over time you know so you know in the modern environment even things like the attention structure this guy have a million Twitter Twitter followers or three Twitter followers so that is an index of the attention structure enhance the status of the guy within the broader community. So and from an evolutionary perspective it's reasonable that women would prioritize these qualities because of the tremendous asymmetry in our reproductive biology namely that fertilization occurs internally within women not within men women bear the burdens of the nine month pregnancy which is metabolically expensive as well as creating opportunity costs in terms of mobility and solving the other tasks that people need to solve in the course of their lives and so one way to phrase that is that the costs of making a bad made choice are much heavier for women when it comes to sexual behavior certainly because it and the benefits correspondingly of making a wise made choice are higher for women in the sexual context. So we said we have mutual made choice in our species and so what do men value more than women physical attractiveness they rank that as a more important criteria than do women about men yes yeah consistently across consistently and it's not that women are are indifferent to it so women do pay attention to a guy's physical appearance his fitness and so forth and guys are actually off base in that thinking that women prefer more muscular men than they actually do so like in muscle magazines these men with bulging biceps and so forth women don't find that especially but they do prioritize fit men a good shoulder to hip ratio and other qualities of physical appearance as well as things like cues to health so in physical physical appearance provides a wealth of information about a person's health status but also provides for men a wealth of information about a woman's fertility her reproductive value not that men think about that consciously I mean you men don't walk down the street and see a woman and they all I find her attractive because I think she must be very fertile maybe a few weird people do that but most men just it's like they just find those cues attractive and the cues are cues associated with youth and health because we know that youth is a very powerful cue to fertility and reproductive value. So men prioritize physical appearance and in the field of psychology it used to what I was taught when I was an undergraduate that you can't judge a book by its cover that physical attractiveness was infinitely arbitrary infinitely culturally variable and it's simply not true we know now based on the last 20 years of scientific studies that the cues that men find attractive women are not at all arbitrary. There is some variation across cultures like in relative plumpness versus thinness but things like clear skin clear eyes symmetrical features a low waist to hip ratio full lips lustrous hair all these are qualities that are associated with youth and health enhance have evolved to be part of our standards of attractiveness. And so it's not just that men are these superficial creatures who evaluate women on the basis of appearance there's an underlying logic to why they do so. And as I said relative youth this age thing is one of the largest sex differences you find in long term age selection with women prefer somewhat older men and men prefer somewhat younger women. Is there a consistent age gap to relate to that statement yes there is so the age gap though depends on the age of the man so so we can document this so in my studies what we found is that men preferred women who are about three to four years younger than they were on average and I'll qualify this in a second women preferred guys who are about three and a half to four and a half years older. So there was a sex difference going in the opposite direction. But as men get older they prefer women who are increasingly younger than they are so one way to gauge this so they're actual marriage statistics and then there are express preferences and both sex is kind of converged so if you look at. First marriage second marriage third marriage as if people get divorced and remarried average age gap is in America anyway is three years at first marriage with the guys being older. Five years at second marriage and eight years at third marriage. So that is as men are getting older and getting divorced and remarrying that they are marrying women who are increasingly younger than they are in terms of preferences it's also expressed in preferences so it doesn't go down so so like a say a 25 year old man would say prefer a woman who's 20 or in early 20s. 35 year old man might prefer a woman who's in her late 20s or early 30s 50 year old man might prefer a woman who's say 35 to 38 so so the preferences do go up but the gap gets increasingly larger and the reason that you don't see things like why aren't men preferring women so peak fertility in humans is around age 24 25. And so you say well why aren't the 60 year old man prioritizing 25 or women well as I mentioned we have a it's reciprocal mutual mate choice phenomenon so she constraints the equation is she well she constraints it but also marriage and long term mating are things other than reproductive unions in the modern environment that is there. You know we you're supposed to do things as a couple and if you get too large an age gap then essentially you're in different cultures you know you you grow up with different songs and and and if the cultural gap gets too large you don't understand each other. So so there constraints on that but if you look at context where there are no constraints of that sort so historically kings emperors despots etc and I'll give one more modern example. They basically prefer young fertile attracted females and if they have herums they stock the herums with those and then circulate them out when they're 30 and so forth and so so if you look at marriage systems that are unconstrained then the preferences are more likely to be revealed or within cultures that is if you look at men who are in a position to get what they want so as Mick Jagger noted you can't always get what you want but if you try some. Yeah what you need I hear that it that most of the time he got what he needed right right right he got what he wanted right yeah and maybe what he needed but he he was in a position I don't know if he's still easy to the he's in his 70s now but he was in a position as was let's say Rod Stewart to take another example or Leonardo DiCaprio if you were a male who's in a position where there are thousands of women potentially available to you and you can. Have you pick then you see that clear expression for younger females there was a chart that was floating around the Internet of the the girlfriends of Leonardo Leonardo DiCaprio as he got older you know so he's getting older and older and the graph of the age of the his girlfriends it basically stayed the same was in the early early 20s or so he values consistency he's consistency but so so so anyway the data converge on that so these are universal sex differences in long term made selection so now when we shift to oh and I should mention cultural variability because that's a critical thing because there is in my 37 culture study what I found was the preference for virginity that is no prior sexual experience that was the most the most sub variable desire across cultures so you had cultures like at the time of the study China it was basically indispensable that a partner be a virgin and then at the other end you have Sweden where Sweden the Swedes typically place close to zero value on it and some you can find it undesirable like you're weird if you're a virgin and so you have this whole spectrum this is virginity in the female or is this also this is not in when China was it preference at the male and the female mutual mates selection it was a preference for both sexes interesting but it's a good question because where there was a sex difference it was always in the direction of males prefering virginity more than females and we've gone back to China so I still do research in China among other places and we've gone back and retested modern urban populations and the importance of virginity has gone down in China especially in the urban areas and the sex difference that did things before has now emerged where males value it more than females and I think part of it was in previous times you hit ceiling effects you know where both sexes say yeah it's absolutely important to be a virgin so so there's cultural variation and cultural change over time in some of these qualities but the sex differences that I described have remained invariant over the years so since my 37 culture study this has been replicated in at least a couple of the dozen different cultures and and we've gone back to some of the culture so I mean so we've gone back to China Brazil and India to look at cultural changes over time and there have been you know in some cases dramatic cultural changes over time but the sex differences that I described are invariant they haven't changed a bit I'd be remiss if I didn't ask about truth telling and deception because some of the measures that you're describing age for instance one can potentially lie about right I'm guessing that there are people who do that on online profiles and whatnot from what I understand people also lie about height and other features on online profiles but some of them are much harder to hide right eventually the truth comes out about some if not all of these things so if you would could you tell us about how men and women leverage deception versus truth telling and communicating some of the things around mate choice selection yeah well so basically the both men and women do deceive so we have the modern cultural invention of online dating which you know was little used 10 years ago and virtually absent 20 years ago and people do lie but they lie in predictable ways they lie in ways that attempt to embody the mate preferences of the person they're trying to attract and so men do lie they deceive about their income their status so they exaggerate their income by about 20% they they they add they tack on about two inches to their height so if they're 510 they round up to six feet so they don't like if they're 510 they don't say that they're gigantic but they they kind of rounded up in the more desirable direction women tend to deceive about weight so they tend to shave about 15 pounds off of their reported weight and both sexes post photos that are not truly representative what they actually look like so they might post photos of themselves when they were younger or they're even advice they're trying to get tips on how to create the best selfie of the best angle that will maximally you know enhance what you look like or or just doctoring a photos I'm guessing photo shopping absolutely and and one of the things about it now you say like well do people find out of course people people do find out I mean I just give you one story about a colleague of mine who is doing is a male who's doing internet dating he picked only women who self describe as sevens on the one to seven on attractiveness so the most attractive so as self reported and so until and out with as one woman and she was missing her front teeth and he said well call me picky but missing her front teeth and she thinks she's like the top of a track was he was a little disappointed about that and women of course are disappointed they they meet a guy who they think is this physically fit you know athletic guy and he comes up is you know 300 pounds and overweight so people people do find out and so and there are some internet dating sites have kind of a vetting of the accuracy of something so that's something you can look up through public records and to this guy have a criminal record for example is he is he on a you know a sexual offenders a website so so there's something you can verify but what I tell people is you really have to meet the person and interact you know because the be in part because of the deception but also because what happens with internet dating is that the photograph tends to overwhelm all the other cues and all the other cues are written statements and we weren't really evolved to process written statements but we were evolved to respond to physical cues but we found that men tend to attend to the visual cues much more than women so women in their mates selection they have all factory cues so what is the guy sound like is vocal qualities that's auditory cues but all factory cues what is he smell like and so women have a more acute sense of smell than men do and so if the guy doesn't smell right even if he embodies all the other qualities women want that's a deal breaker and and so I encourage people just you know stop with the 100 techs back and forth or messaging and meet a person for a couple coffee and interact and then you'll you know you'll get a more accurate beat on the person and then of course some qualities you can't assess even with a with a half hour interaction you can tell a lot but things like emotional stability or things that have to be assessed over time and so one of the things that I advise people to do and I'm not in the advice giving business but people ask all the time what they find out what I study they say well I got this problem can you give me advice and but one of the things to assess things like emotional stability which is absolutely critical and long term mating is to do something like going a trip together take take a vacation and where you're even in an unfamiliar environment where you're you have to cope with things that you're not familiar with and as opposed to an environment where it's very predictable and and so you get a greater exposure because one of the one of the hallmarks of the hallmarks of emotional instability is how they respond to stress so emotionally unstable people tend to have a long latency to return to baseline after a stressful event and so this is sort of information you can't get on a coffee date you know you can only get by assessing it over time. So I'm going to use laboratory studies stress and tools to combat stress I that's great it's yet more incentive for people to develop self regulatory mechanisms for themselves I'm guessing many of the features of deception in this context were present long before Internet dating and so is it it's somewhat dark to think about what is the exception built into this dance that we call mate selection and has it been built in for a long time or is this or is this something that you think has emerged more as people are approaching each other through these electronic based mediums. Yeah I mean some forms of deception have been there for a long time over human evolutionary history so one form of deception which we haven't mentioned is deception about whether you're interested in a long term committed relationship or a short term hookup and so there's deception about that especially on the part of men so men who were interested in the gender it has been reported although tender denies this has been reported that something like 30% of the men on tender are either married or in long term committed relationships and there we've heard something on the side but the in terms of successfully attracting a mate the overt display that hey I'm interested in just a short term hookup I'm interested in sex so I want to have sex right now let's just go back to my apartment these are very ineffective tactics and so effective tactics for men are often displaying cues to long term interest and so and of course that's effective for a woman who's seeking a long term interest and so and so that's a deception so we find in our studies of deception that men tend to exaggerate the depths of their feelings for a woman exaggerate how similar they are and how aligned they are in their values and religious orientations and political values and so forth and so and so I think there's deception around that and I think that's probably an evolutionarily recurrent form of deception that women have defenses against by the way but I think that modern internet dating opens the door for certain types of deception that it were at a minimum were difficult to accomplish and so like things like photoshopping you know wasn't available back then plus we evolved in the context of small group living where you not only had your own personal observations of someone's qualities you had also your relatives your friends allies the social reputation that someone had and this is a these are all critical sources of information that are less available in modern environments because you know people migrate they move from place to place they can close down one internet profile and put up another or they could have six going simultaneously so there so the modern environment opens up the door for forms of deception that weren't available or weren't available to the same degree and sastrally I see very interesting would you touch on some of the the features that are selected for in terms of sexual sexual partner choice we talked a little bit about make choice but in terms of sexual partner choice are there are there any good studies exploring what people are selecting for or is it that they are both just in a state of pure hypothalamic dry you know monoscientist after all and and therefore it's hard to recreate in the laboratory well no we do know something about that and we know something about how the preferences for a sex partner differ from preference for long term mate there is overlap of course but one thing is physical appearance so physical appearance for women is important in long term mating not as important as for men but it becomes more important in short term mating and so is the guy the looking so those physical attributes are more important for women they are they remain important for men physical appearance in short term mating but with the footnote that men are willing to drop their standards in short term mating if it's low commitment low risk just sex just sex you know without entangling commitments women are more likely to prioritize what I call bad boy qualities so guys who are very self confident guys who are strut guys who are a little arrogant guys who are risk taking guys who defy conventions women are more attracted to those guys in short term mating than long term mating and whereas in long term mating they go more for the good dad qualities is this guy dependable is he going to be a good father to my children and then also in short term mating women use that mate copying heuristic that is if there are thousands of other women who find a attractive women find a attractive and so that's why you have the groupie phenomenon so with rock stars for example there are thousands of screaming women all of whom want to sleep with this famous rock star and they use that as information they find if you took like a still photo of some of these rock stars and ask women how attractive the guy is versus tell me the famous rock star and show the thousands of women screaming at them that they judge them entirely differently terms of his attractiveness so or even and this is this is an important point that women's attraction to men is more context specific and varies more across contexts than men's attraction to women and so I'll give you just an example that this is a female colleague of my went to a conference an academic conference and she found the organizer of this conference to be really attractive and and and then saw him six months later and wondered what was I thinking he isn't seem very attractive at all and what it was is when he was the organizer he was at the center of the attention structure you know he he was the guy up on stage directing everybody and everyone was attending to him and then when he was just a normal presenter at a conference he wasn't didn't command the attention structure like he did in that when he was the organizer and so this is just an illustration of how the circumstances dependent women's attract made attraction is for guys it depends on you know his status the number of women that are attracted to him the attention structure is he how how he interacts with a puppy or or a baby if he's ignoring a baby in distress or positively interacting with a young child all these things what where's for men it almost doesn't matter you know context is a more irrelevant they're hunting in on the specific psychophysical cues that the woman is displaying in context be damned very interesting let's talk about infidelity in committed relationships what are some of the consistent findings around reasons for and maybe even long term consequences of infidelity for men and women and this could be marriage or long term partnership or yeah infidelity of any kind I suppose yeah so well guessing it does happen yeah yeah well that's how frequent is it yeah that's that's the interesting thing well well how frequent it is is difficult to gauge because it's the the one of the forms of human conduct that people like keep secret so so if you go back now let's say 70 years to the classic Kinsey studies the questions about infidelity were the questions that most people refused to answer and when the question was brought up caused more people to drop out of the study and so that kind of tells you something that I mean what what do people conceal you know infidelity incest murder you know there is a small handful of things that people universally want to conceal an infidelity is one of them so but people do it and so Kinsey estimated 26% of married women committed in an infidelity at some point or their marriage in about 50% of men other studies have given lower figures and so that the exact figures bounce around depending on you know anonymity provided and how comfortable they are with the interviewer and so forth but and by infidelity as that mean intercourse with somebody else yeah so we're not talking about a quote-unquote emotional affairs we're talking about this we're just sex sex with somebody other than their committed partner with unbeknownst to their partner right right and there are other forms of infidelity which we could get into including emotional infidelity and financial infidelity but here we're just talking about for the moment sexual infidelity and the interesting thing about sexual infidelity is that the sex is really differ fundamentally in the motives for committing infidelity so for men the primary motive and these are on average sex differences so whenever I talk about second or not on average sex differences because there's overlap in the distributions and but so these are generalizations of which there are exceptions so so for men it's it's mainly a matter of sexual variety so about 70% of the men it's the opportunity presented itself I was out of town and I had this opportunity so low risk low cost pursuit of sexual variety sexual infidelity as a key motivation for men sorry to interrupt I just want to so 70% of men that cheat that's the primary cause or is it that 70% of men do cheat no no 70 of the men who cheat 70% thank you for that clarification of the men who do cheat 70% site that as the key motive the key reason why they committed an infidelity sort of like why mountain climbers climb mountains because they're there if they well you know the comedian I think it was Chris Rock said men are only as faithful was their opportunity or how how available their password on their phone is to their partner right yeah so but and that's an exaggeration but but but if you look at women this just desire for pure novelty sexual variety is much less of a motive but women who have affairs site that they're unhappy with their primary relationship emotionally unhappy or sexually unhappy and typically both and this may seem like totally obvious that well of course people are unhappy in the relationship or more likely to stray but in fact it's not true for men so if you compare men who are happy with their marriage and men who are not happy with their marriage there's no difference in their infidelity rates and I think it goes down to that issue of you know it's motive for seeking variety so now why do women do it because it's it's a risky endeavor she risks her long term mate or losing long term mate it's risky in terms of reputational damage for both sexes so it's a risky thing why do women do it and there are two competing hypotheses at least two but there are two primary competing hypotheses in the evolutionary literature one is called the dual mating strategy hypothesis where women are seeking to get resources and investment from one guy and good genes from another guy so in principle and in principle that can that can work and I initially this isn't wasn't hypothesis original with me this is Steve Gang instead Randy Thornehill and some others of Marty Hazelton a former student of mine have advocated this dual mating strategy hypothesis and originally I was endorsed it because the data seemed to support it we can get into which data seem to support it but over time I became more and more dubious about this hypothesis and instead have advocated what I call the mate switching hypothesis and so if you look at a whole host of information around why women have affairs it's not compatible with the dual mating strategy hypothesis so and is compatible with the mate switching that is women who are looking to either divest themselves from an existing mateship or trade up in the mating market to a mate who is more compatible with them or higher in mate value or simply see whether they're sufficiently desirable so that it eases the transition into the mating pool or keeping a mate as a potential backup mate what I call mate insurance insurance if you have car insurance if something bad happens to your car house house insurance we also have mate insurance you know keeping some women one woman said men are like soup you always want to have one on the back burner so interesting whether that's the best analogy I'm not sure but but it kind of captures something about about why so so well what evidence am I talking about well for one thing women who have affairs this is about 70% of them they again sorry just I want to make sure people of women who have a fair so let's say ballpark Kinsey was let's say roughly right 25 26% of women who have a fair let's just assume that he's right and we don't know exactly but of the women who do have affairs about 70% say they have fallen in love with their affair partner they become deeply emotionally involved with their affair partner and to me if you're just trying to get good Jeeds from a guy that is the last thing you want to do is fall in love with them or get emotionally involved but it's very compatible with you know it's very compatible if you want to switch mates and so the so that's sort of that's one piece of evidence that suggests that women the the mate switching function of infidelity is a more likely explanation that these two are not inherently incompatible hypotheses in other words it's possible that some women do pursue a strategy hypothesis but there's other evidence that suggests so for example what are the actual rates of genetic cockledry well in the modern environment anyway they're pretty low turns out they're like 2 to 3% could you just explain for the audience what genetic cockled so this is where we're the woman where the man believes he is the genetic father of a child but it turns out he's not might be the male man or the child who's the first or neighbor of the guy she's having an affair with so mistaken paternity and genetic cockledry is just one way to capture named after the cookbird who sneaks its eggs into the nest of the other roles destroys the future offspring of the bird and then basically offloads all the work onto another father parasitizes the parental investment of different bird species so so anyway so I think that in there's other sources of evidence that I think points so so one of the sources of evidence that initially seem to support the dual mating strategy hypothesis was ovulation shifts so in other words it looked like from the early studies that when women are ovulating these are among non pill taking women non women not on a hormonal contraceptus that they experienced a preference shift toward more men who were masculine and symmetrical which were hypothesized markers for good genes and there's an explanation for that but it turns out the effects of ovulation on women's made preferences are far weaker than initially than the initial studies looked like and in fact some larger scale studies have failed to replicate them entirely and so it's that was one of the key source of evidence these are the same thing that we have in the last few years and we have a lot of evidence that women were going after good genes because it's only when she's ovulating and she can get pregnant by having sex with another man that it would make sense for her to have sex with another man and there was even some early evidence that women were timing their sex with their affair partners to coincide with when they were ovulating but but as I said some of these subsequent studies have failed to replicate these early findings calling into question the dual mating strategy notion and so I think I've shifted my views on this and now endorse the May switching hypothesis says a more likely explanation for why most women have affairs well the way you describe this makes me wonder if when of the women that have affairs do those affairs tend to be more long lasting than the affairs that men have because the way you describe it is men are seizing an opportunity to sort of a kind of a type of approach to a infidelity and women potentially on average are on capitalizing on something that is longer term now of course if they're doing this around ovulation then it would constrain the amount of times they would need to see or have sex with the the other person that they're not married to but is there any evidence that women have more ongoing affairs and men have trans more transient affairs yes yeah there is and so if you look at people who have a fair is there's a sex difference there so that women tend to have a fair is with one person and become emotionally involved with that one person over time men tend to who have a fair is tend to have affairs with a larger number of a fair partners and so which then by definition can't be long as you can't have long term affairs with six different partners unless he's juggling multiple phone accounts or something right right right and some men try to do that but I think it could be very taxing yeah well and in this day and age it's it's easier to meet more people by virtue of online communications but it's also easier to get caught meaning it's harder to conceal interactions everything's in the cloud anyway a good friend of mine who's a former very high level and special operations said anything that's not in your head and only in your head is available for others to find should they want it yeah I think that's and I think that's largely true yeah and yeah so fun information text messages and people are very good hacking into their partners funds computers and then also there are video cameras everywhere so so sneaking off to this a quiet restaurant I mean there are probably eight video cameras that can record you walking in and out of that restaurant everything can be found yes I'm certain of that you mentioned emotional affairs and financial infidelity as well yes I had a girlfriend once who as a early date discussion said not that I get the impression that you are but I want to be very clear she said that you are not emotionally physically or financially tied to any other women and I thought it was very interesting that now you bring up a financial infidelity she's quite happily partnered now and not with me but but it's interesting is the first time I heard anyone spell it out that way as a list almost like specific games and a grant what is emotional infidelity what is financial infidelity yeah well this is a very smart woman to all three and so I assumed you you were you gave honest responses to all of those three questions as I recall I did because we now know that they're well you can ask her at some point right okay and there is self deception in the service of deception is another issue so emotional infidelity is basically exactly what it sounds like it's falling it's falling in love with someone else becoming psychologically close to someone else sharing intimate or private information with someone else that's what I mean by emotional infidelity and one of the hallmarks of this study done by a former student of my Barry Culey is very clever however I thought he analyze there used to be this reality TV show called cheaters where they would hire detectives and they would when the detective would like say follow someone to a hotel room they call up the partner and say your husband just walked into the hotel with someone else do you would you like to come down to the hotel and confront him and certain percentage of people would confront and what he analyzed so he analyzed all these episodes of this show called cheaters and what he examined was the verbal interrogations when people confronted their partners and when men confront their partners the first question they want to know is did you fuck him women the first question was do you love her and so this kind of captures that difference between a sexual infidelity and emotional infidelity and also kind of captures another sex difference when it comes to sexual jealousy you know where men tend to be more focused on the sexual components of the infidelity because those are what compromise his paternity certainty his certainty that he's actual actual the genetic father of whatever offspring and so where is what love is a cue to do you love her that's a cue that he's going to leave you the woman for another woman is a cue that to the long term loss of that investment and commitment from that partner and so and so the sex is seem to differ in which aspects of the infidelity with women were attuned to more upset by the emotional infidelity men more about the sexual infidelity now financial infidelity has been explored much less but in in my new book when men behave badly I have a section of financial infidelity where I summarize all the research that has been done and I was kind of flabbergasted by the percentage of people who do things like have credit cards that their spouse doesn't know about keep secret bank accounts have the credit card bills may be a little bit more important to me the credit card bills mail to their office rather than their home have basically resources and expenditures of pooled resources that they keep from their partner and both sexes do it and and the percentages vary from study to study but they range from like 30 to 60% of all people who are keeping financial information from their from their spouse and one way or another could be the woman's out buying designer or purses or designer handbags could be the guys out going to strip clubs or taking his a fair partner to restaurants and doesn't want those charges to show up on you know jointly hell credit card so financial infidelity is critical and then even things like diverting pooled resources to one set of genetic relatives versus another set is another thing that people tend to keep secret so there are forms of financial infidelity as well so yeah infidelity you're absolutely it's a great question because it shouldn't be confined to sexual infidelity which is what most people think about but also emotional and financial interestingly if you ask people what do you mean what what is infidelity in a marriage men tend to say well it's obvious as she has sex with someone else that's infidelity whereas women are likely to have a broader definition of infidelity they will cite things like emotional infidelity financial infidelity as part of the definition whereas men have that more narrow definition interesting I have a good friend who's a couples counselor clinical psychologist and she told me something interesting that relates to this which is that in cases of infidelity often times the some of the arguments between couples boil down to whether or not contraception was used or not that becomes a key feature and she always thought that that was you know home homing in on a detail which of course is an important detail as it relates to both paternity issues and pregnancy but also disease right but as we're talking about all this it makes it makes me think that this may have deeper evolutionary roots in our further down in the brain as we say yeah yeah and yeah and I mean using a condom versus not using a condom not using is a more intimate act in a way you are literally physically more intimate with someone else than if you do use a condom so you know but whether it's whether evolutionary roots to this I don't know I mean condoms are probably relatively recent and at least the widespread use of them relatively recent and evolutionary time so I doubt we have adaptation specifically for them no and presumably before condoms say I one can only speculate because as we say with it comes to behavior there's rarely a fossil record but sometimes there is it would be the withdrawal method of contraception which a good friend of mine who studies whose laboratory works on reproductive biology says the reason that's a poor choice of contraception is because it was designed not to work so note note to those of trying to avoid unwanted pregnancy so we talked a little bit about status in terms of what men and women are selecting for different types of relationships is there anything else about status that you find particularly interesting and you know what men are finding attractive besides these you know ways to hip ratios and quality of potential mothers and so forth are there any kind of hidden gems in the literature around this that might not have heard of well yeah so you mean among you know things like sex differences in what leads to high status or or for instance or what or perhaps things that are surprising in terms of what people are selecting for do people even know what they're selecting for this is or is this all subconscious any and all of those topics are of interest to me so well to take them in reverse order you know I think a lot of that is conscious but some of it is certainly unconscious or there are elements which are totally unconscious so I mentioned one earlier where man looks at a woman he's not he's aware that he's attracted to her and attracted to her physical appearance but he might not be aware of why you know we didn't evolve to be aware of why just like with food preferences we we find certain things directible in other things nauseating we we don't understand the adaptive logic of why our food preferences exist and why we have them and the same is true of mating you know and so men find women with with a low waste-tip ratio attractive but they might not, they almost rarely will they know, oh, low waste waste of ratio is actually associated with higher fertility, lower endocrinological problems, lower age, etc. So we're sometimes aware of what we want, but we are unaware of why we want it. So I think there are unconscious elements that the whole topic of status and what leads to high status on low status is topic I'm currently investigating published a couple scientific articles on it and so but maybe we'll hold off on that for a future discussion but it intersects, I'll mention one, it intersects with mating in interesting ways in that higher status gives people the ability to choose from a wider pool of potential mates than they would if they have low status and so one of the reasons that people strive for status is because they have access to more desirable mates. Conversely, having desirable mates endows you with higher status and so if you have if you're a male you have a very attractive woman on your arm that leads to high status and so there's a reciprocal link between status and mating in that way and there have been studies where you say they pose a kind of unattractive guy, older unattractive guy and a stonningly beautiful woman as a girlfriend and they say well what's this guy all about and they say oh he must be very high in status, he must be very wealthy, he must have a lot going for him you know where as the reverse people don't make the same attributions and so and so there is an interesting reciprocal link between status and mating success where mating success leads to high status and high status leads to more mating success. To over and over again there are these instances that you describe where the assessment of potential mate sexual or long term partnership or being made in the contents of good statistical practices looking at the choices of others as a readout of your own choices. This seems to be a theme that this is not being made in a very narrow context but paying attention to what other people are paying attention to seems to come up again and again. Slightly off-center from that but still paying attention to what other people are paying attention to what's known about jealousy in men versus women and how frequent it is, how intense it is and what people do with that jealousy. I mean we hear or I've heard at some point that a large fraction of homicides are the consequence of jealous lovers. That's the darkest angle of all this but in evolutionary psychology context what is jealousy does it relate to paternity issues only working to us? Yeah so well that's a great set of questions and when I first started studying jealousy I reviewed all the prior publications on jealousy and at that time jealousy was regarded as a sign of immaturity, a sign of insecurity, a sign of neurosis or pathology or in some cases delusion and what I argued is and do argue is that jealousy is an evolved emotion that serves several adaptive functions. One of which you mentioned is a paternity certainty function but to back up a second basically once you have the evolution of long-term mating, long-term pair bonds you're talking about from a male perspective investing a tremendous amount of resources in a woman and her children over years or decades. You know with boomerang kids now and may go more than two decades. Boomerang kids kids kids to leave home and then come back and live at home because they're happy because they oh yeah I don't have children so I don't know. Okay yeah no that's a big thing but if I do all just expect that they'll come back it's all right. I'll come back because they they can't find a job or they find it cheaper to live at the parents' house or whatever oh goodness I can't think of anything worse I mean I love my parents but I know I don't get to count them as them but but it happens and it's happening more and more in the given the current economic situation. Okay but so once you have long-term mating you need a a defense to prevent or preserve the investment that you've made or in our making in long-term mateship and so jealousy serves this mate guarding function if you will or mate retention function so in other words one way of phrasing this is that we know that they're there are fairs we know that people break up they get divorced but people have adaptations to want to hold on to their mates okay and that's what jealousy is important about and so jealousy gets activated when there are threats to that romantic relationship. In their other forms of jealousy like sibling jealousy and so forth but we're focusing on mating jealousy in this context so now what's interesting is that the threats to an ongoing valued romantic relationship come from many sources so they could be you detect cues to your partner's infidelity or cues of a lack of an emotional distance between you and your partner you you say I love you to your partner and your partner says oh I wonder how the how the nicks are doing this scoring season or whatever if you get an unresurpercated I love you is a bad cue or a half or some people are so tuned to this if there's a half millisecond delay they can detect delays in responses yeah yeah delays in responses but even things like uh so that's one set of cues but then there's another set of interested mate poachers so you know if you're made it to someone who's desirable um which many people are other people still desire them and so sometimes try to poach them or lure them away from you for a short term sexual encounter or for a longer term relationship and so we have to be so jealousy motivates people to be attentive to potential mate poachers in their environment but even more subtle things like uh mate value discrepancies can trigger jealousy so even if there are no mate poachers and no cues to infidelity if um a mate value discrepancy opens up in a relationship so in the American system like you're a six or an eight or a ten uh and people generally pair off based on similarity in mate value so that tends to happen 10 x is end up with 6 is 7's end up with 6 is plus or minus one yeah yeah right so yeah these are somewhat subjective scurred okay is somewhat subjective but there's still some consensus about these things so even in colloquially people colloquially people say things like um um he's not good enough for you you know or i think you you could do better to people and implicitly have a notion of relative mate value and discrepancies there and hey but discrepancies can open up where none previously existed so you get fired from a job all of a sudden you know and most people are very understanding and forgiving about that if it's not too long but you go six months eight months people start having problems or someone's career takes off we'll say a woman becomes a famous singer or actress or or or or Amanda's career takes off all of a sudden there's a mate value discrepancy where you have access to a larger pool of potential mates and higher mate value potential mates so so people are attentive to mate value discrepancies and so jealous thinking get activated even if there are no immediate threats to a relationship but the the mate value discrepancy is a threat that looms on the horizon of the relationship because we know statistically the higher mate value person is more likely to have an affair and is more likely to dump the other person and trade up in the mating market and and when people find a new partners for long-term relationships do they tend to trade up on average yes if the discrepancy if the discrepancy is sufficiently large so so there are costs associated with breaking up you know divorcing for example I mean is it emotionally financially it's a costly thing and so if you have like a half a point mate value discrepancy you're not going to see a lot of breakups but you know if you have larger mate value discrepancies that's going to auger more for trading up in the mating market so but so then then you get into so what jealousy is it's an emotion that gets activated by these circumstances and then what people do about it depends on what their options are and people do things that I in my published scientific work I say range from vigilance to violence so there's whole spectrum of things and effect of identified 19 different tactics that people use to deal with problems once they get jealous and one is increased vigilance and the other experience for the behavior of the mate yeah vigilance for the behavior of the mate and that can include stalking following hacking into iPhones or computers monitoring the behavior of mate poachers looking at eye contact between other men and your partner there's a whole suite of things that you know is involved in in vigilance and then at the other extreme and we can talk about things in between but the other extreme is violence and so in my new book when man behaves badly I have a whole chapter on intimate partner violence and this is what I argue and this is really unfortunate and I'm not endorsing it's illegal it's bad don't do it but people will engage in intimate partner violence in America something like 28 to 30 percent of all people who are married will experience intimate partner violence in their in their relationship so it's not a trivial percentage and that violence is between the two partners between the two partners yes there's also violence that gets directed to our potential mate poachers but that's that's a somewhat separate issue okay but one of the things that is functional about the violence is that it tends to reduce perceived and mate value discrepancies so another as I say it's a guys tend to engage in the violence more than women do although some argue that there's more equality in the violence but at a minimum men tend to do more damage when they do the violence and when you're talking about violence is this ever emotional violence I mean yeah there's that as well and in fact the two tend to be correlated so in my studies the married couples verbal violence is a good predictor of physical violence happening as well so one thing that will happen just to give a concrete example guys will start insulting their partners appearance you're you're really looking ugly today your your thighs are heavy you're you know you know not looking very good so they try to denigrate the woman's appearance which is a key component of woman's mate value so they're trying to adjust more closely the mate value discrepancies yeah they're trying to reduce her perceived self-perceived mate value so if if let's say he's a six she's an eight and he can convince her that she's actually only a six then she's going to be more likely to stay with him very diabolical it's terribly diabolical but the fact is women don't feel good about themselves when they get beaten up by their partner in fact in in the cases where it leaves physical evidence you know women where sunglasses or turtle necks or cover up the the the bruises it is it literally does lower the mate value of the woman by injuring her physical appearance and getting her to conceal herself stay home yeah exactly yeah she's taking her out of the the literally take reducing her visibility right and and that's actually one of the predictors of violence as if he starts doing things other than violence like cutting off her relationships with her friends and her family trying to sequester her uh and prevent her from getting exposed to potential other other other partners and so it is uh very diabolical but I think important to understand you know the the potential functionality of of intimate partner violence so what about it I'm sorry to interrupt again but I'm just so curious so oftentimes my audience will say yeah interrupt too often but I want to make sure that I don't miss an opportunity to ask you about the intimate partner violence in the other direction female to male where stereotypically speaking that the opportunity for physical violence is still there but the the idea in mind is that um it would be more of a psychological nature although I think there is evidence that that some women beat their husbands yeah but it I'm guessing it's not as frequent or am I well well different studies so it depends on whether you just simply count up acts or whether you look at the damage that's done okay and as I mentioned men tend to do more physical damage so there are shelters for battered women all over the country as far as I know there's one for battered men now it may be and this is partly true that men are more ashamed if they get beaten up by their partner a clock with a frying pan and it's possible and there's evidence that police don't take it as seriously so there's one case that I report in my book where a guy called the police and his wife had clocked him with something and police shows up and he says if she's so much as broke a fingernail in this altercation they'll charge you and not her and so there's a there is a a police bias a potential police bias in this and so there may be under reporting of women beating up men as a consequence okay but the motivations are often different so one is that male sexual jealousy will trigger him to attack his partner and then she will use physical violence to defend herself so she might pick up and a frying pan or you know or or or a weapon of some sort to defend herself and so the motivation is his sexual jealousy on his part but self-defense on her part and so that accounts for some unknown percentage of the cases and in some cases it is women who were outraged when they discover their partner has been having sex with someone else and infidelity of a sexual financial or emotional nature and so there is some female to male violence that absolutely occurs but the reduction of a perceived mate value discrepancy is a key function from male perspective not again not that he thinks about this he's just angry and wants to hurt her okay okay but but here here's one other thing that is really interesting at about the intimate partner violence and that's the specificity of it depending on circumstances and namely when the woman gets pregnant she's more vulnerable to physical violence and when the man suspects that he's not the father of that pregnancy he's more likely to direct the violence toward blows to her abdomen okay that's that's that's specific and so in that case the function is is hypothesized function is to terminate the pregnancy by arrival male as opposed to deterring the woman from committing an infidelity or from leaving the relationship entirely so that's why one function of intimate partner violence is is just sequestering the woman and keeping her all to himself so it's both to prevent infidelity and to prevent defection I have a friend who wife told me that if she if he cheats I'll kill him that's what she said but it's actually just much easier to keep him very very busy and and that statement now leaps to mind because of what you're describing that there are many tactics by which people can engage this effort to reduce the mate value discrepancy not all of which are overtly violent but summer but all of which are designed to constrain their behavior right right yeah these were so these would fall under what I would call mate retention tactics and only one or two of which fall under the violence category yeah they're there are even yeah within partner psychological manipulations about these things so there are psychological manipulations about perceived mate value you know no one else would want you you know your your loser there's denigration of partner within the relationship uh even feigning anger to make the partner feel guilty about say looking at someone else so so there's all kinds of uh internessian warfare that goes on within relationships to manipulate perceptions of these things this is how I'm creating a much too jaded view of romance and love I think oh no we will get to the the the happy endings and and long I mean there are certainly many happy relationships out there I oh you know as a neuroscientist I hear about this and and the immediacy of of how people you know fall into a pattern of jealousy or a pattern of cheating and not always but and and I it just speaks to a brain circuitry that's evolved to protect something and I'm sure this statement is not exhaustive but I think it's accurate to say that every species but especially humans wants to make more of itself and protect its young but these issues of paternity and resource allocation I mean I think they're vital and you know I look forward to a day where evolutionary psychology and neuroscience are can merge at the level of of underlying mechanism but I don't think it's um dark I think it's just the the way we're wired at some level um speaking of dark um could you tell us about the dark triad yeah so the dark triads we've been talking about sex differences on average but there are critical within sex individual differences and the dark triad is one of the most important ones the dark triad consists of three personality characteristics so narcissism macchi-evalentism and psychopathy hallmarks of narcissism are things like a grandiosity person thinks that they're more intelligent more attractive more dazzling more charming than they actually are I think they're the greatest person since sliced bread importantly with narcissism you also get a sense of entitlement so they feel entitled to a larger share of the pie whether that be the financial pie the status pie or the sexual pie macchi-evalentism is high scores tend to pursue an exploitative social strategy so they might feign cooperation but then cheat you know on subsequent moves uh they view other people as pawns to be manipulated for their own instrumental gains uh and then psychopathy one of the hallmarks of psychopathy is a lack of empathy so most people have a normal empathy circuit where if a child falls down and gets hurt we feel a compassion for the harm that that person is undergoing or if a puppy gets hit by a car or whatever we feel compassion psychopaths don't though that is those high on this dimension it's a dimensional thing it's not a categorical thing so those high on psychopathy basically lack empathy and so if you combine these qualities narcissism psychopathy and macchi-evalentism you you have uh well some very bad dudes and I say bad dudes because bent tend to score higher in these things than women especially on the psychopathy dimension so when you talk about clinical levels of psychopathy it's estimated to be something like 1% of women and about 4% of men so men are much higher on that so why is this important well it's important in the mating context because uh those who are high on dark triad traits tend to be uh sexual deceivers for one so they're very often very charming very good at seducing women and then abandoning them sometimes with after fleecing them or draining their bank account uh they're very good at um at the art of seduction uh they are also tend to be sexual harassers serial sexual harassers and sexual coercers um so when it comes to forms of sexual violence um high dark triad guys tend to be perpetrators of this and so like most men I think would be uh find it ethically abhorrent to sexually harass a woman in the workplace dark triad guys import maybe they feel entitled to it and and and import they do I mean in some cases that I report in the book there are like literal descriptions where the guys are writing in these journals I knew she was attracted to me you know that's why she she met me in the uh Xerox room just when I was there because she wanted to admire my bulging biceps or whatever it's all about them yeah and they they they and this gets into a bias that I talk about which is the the male sexual misperception bias where women smiles at a man man thinks oh she's she wants my body she's attracted to me and women are thinking oh I'm just being friendly I'm being polite or professional uh but these guys high dark triad guys are more susceptible to the uh sexual overperception bias and they literally believe that the woman is attracted to them and sending them signals green light uh to sexually approach um and so if you combine dark dark triad traits with the dispositional pursuit of a short term mating strategy that's an especially deadly combination that's when you get sexual harassment sexual coercion so these these are very bad dudes um also uh predictors of intimate partner violence what what um approximate frequency in the male population or these have all three of the dark triad traits and I realized that they're on a continuum yeah that's why you can't say yeah because they are on a continuum and it's sort of arbitrary where you where you draw the line uh but but I think it's uh it's a minority of men it's a subset of men who commit the vast majority of these acts of sexual violence and that's why it's not like if you if you look at victims of sexual violence they're more numerous than the perpetrators of sexual violence because the perpetrators tend to be serial offenders so to speak one guy in the workplace harassing 15 different women one guy sexually coercing you know multiple women so that's why you have like uh in well known cases in the news like Harvey Weinstein you know probably over a hundred different women uh bill cause be Jeffrey Epstein some of these more famous cases these are large number of victims but pretty much sole you know perpetrators and there's no question that these guys like Harvey Weinstein and Jeffrey Epstein were definitely high on dark triad traits um you mentioned stalking briefly um uh maybe we could just talk about um some of the less known features about stalking I think I once heard you give a lecture where you said that um one of the scariest things about stalking is that sometimes it works yes yeah so well stalking um has multiple motivations but one of the most frequent motivations is uh a mating motivation where either the there's a breakup and the woman dumps the guy and the guy doesn't want to get dumped he wants to maintain a relationship with her and I should say that when it comes to criminal stalking there's a huge sex difference about 80 percent of the stalkers tend to be men about 20 percent women so there's so there are women stalkers but they're um you know about a fourth the number compared to to men so the motivation of the guys tends to be either an attempt to get back together with the woman either sexually or in a relationship or and or to interfere with her future mating prospects uh and it works in in some of the time in two senses one is it does interfere with her attempts to remade so in fact it scares off some guys so like you show up and pick up a woman at her apartment for a date and her her exes sitting out there glaring at you or uh and I um I'm actually familiar with the circumstance where early in in a relationship somebody mentions that an ex has made um veiled threats about surveillance for instance yeah I've actually had that happen several times in my dating history where someone would say you know you started opening up about previous relationships a little bit as it's appropriate and someone says yeah you know he mentioned that he was gonna as you know send someone around to you know to surveil me you know that kind of thing which is a very interesting um factoid to pick up and uh but I've heard it enough times um and people I know have reported hearing this enough times that I I'm guessing that that's probably more frequent than people actually trailing people in cars and things of that sort but planting that it's like the psychological seat of surveillance is is a form of harassment in some sense yes absolutely I think the you're right I mean there's that planting the psychological seeds but then also with surveillance some surveillers remain hidden so you don't know necessarily yeah I confess in this case it did not act as a deterrent for continuing the relationship yeah but that's um but that's another story so um so how often do women respond I have to put this in quotes uh for those that are listening air quotes and quotes positively to stag me how often does it work to uh re-secure the partner after they've been broken open well so in our in our studies um it's a minority of cases that it works to uh reestablish I think something like 15% of the time that it works either to temporarily re-establish a sexual relationship or lure the woman back in for a more prone relationship so most of the time it doesn't work but um uh one woman in our study said um the guy every time she went out with another guy he would threaten the other guy and she said after about six months there were no other guys he'd basically scared off all the other guys and so she went back to him because there were no other guys around yeah I I experienced this one um I was in college I lived in a small town very population dense um I liveista at UC Santa Barbara and there was a couple where every time um this woman would date someone he'd basically beat up whoever the new suitor was and pretty soon no one would go near them they got a reputation as the kind of sit in Nancy couple um and indeed it worked uh it worked in the sense that um no one dare go near her um and they ended up together so I so I've seen real life examples of this yeah so so it happens but but it is it is in in general not not a successful strategy oh no and it's not what I'm suggesting I was just shocked to learn that because we hear stalking and we we have this uh there's one very extreme image of it but the underlying motivations I think are are uh reveal something about um yeah mating dynamics yeah and and I think that the circumstances are often a mate value discrepancy where the guy realizes correctly that he will be unable to replace her with a made of equivalent mate value uh or or in some cases any mate you know it's like well she she was with me once maybe she I can get her back with me again uh so um so the psychology is very uh understandable but uh but it tends it tends not to work because I mean the other thing we found we just study of 2,500 victims of stalking this is with Josh don't they a former student of mine who's now a professor in a criminology department and what we found is there were large sex different large differences between the stalker and the victim of the stalker where where the stalker tends to be much lower in mate value uh than the victim and so basically the it's typically the woman who realizes she can do a lot better on the mating market and the guy realizes uh I am never going to be able to replace her uh with a with a woman of equivalent mate value and so I'm going to use this last ditch desperate measure to try to get her back and occasionally it works I'm thinking more about this mate uh mate value uh thing this this this this number this metric they 8, 10, 6 uh whatever it is um and mate value discrepancy playing such a strong role in all in all these dynamics um I should have asked this earlier but what is the impact on mate value perceived or real of a woman having already had children you know uh for instance um their friends of mine who are married and divorced who have children who often post pictures of themselves with their children in their online profiles because it shows a a strong sense of paternal instinct um you know there's the puppy thing um uh people with dogs or puppies that demonstrating care a capacity to care and and for care taking um in women that the the opposite is also true women with children show the capacity it demonstrates fertility at least at one point perhaps still fertility that's still present um does it positively negatively or neutrally impact a woman to already have children when seeking another mate regardless of whether or not she was married or had the the children out of whether yeah as a general rule it decreases her mate value because kids with another mate are viewed as a cost not not a benefit and there are cost on multiple dimensions one of which they're going to be a cost to the guy because he's going to have to invest resources um time attention so forth but also a portion of her effort and resources are going to be devoted toward kids who are not genetically related to him and which is one reason why step families there's a lot on a lot of conflict within step families very explicable from an evolutionary perspective in just so in general it's a cost not a benefit sometimes it can be a benefit though so no I know in one case we're a woman got divorced she had two kids and she ended up successfully mating with a guy who was also divorced and had primary custody of his two kids and so there was a compatibility there but as a general rule it will decrease the woman's and the man's mate value to have kids especially kids who are financially who are young and financially dependent but what happens is let's say the woman would be in eight without kids a guy who's a six might be able to attract her and might feel lucky to attract her because there's no way he would have been able to attract her under other conditions but that's why the display of the effort investing in her kids is often a mating tactic he's showing okay I'm willing to invest in in kids I'm willing to sacrifice and so they in essence become equivalent in mate value as a result of that but will she be able to attract on average you know other eights less likely but the same is true of guys and this is why the the reason that affects women more than men is because more custody tends to go with women that is the kids women tend to have greater custody and women tend to invest more in the kids throughout their lives now there are other things like alimony and child support payments and so forth but all the women I've talked to had a factor one on one with many women about this they view a guy with kids as a cost not the benefit unless the kids are old enough and they've left home I don't know find no longer financially dependent and everything you just described is consistent with what you said earlier which is that with subsequent marriages or as men get older the tendency is to seek mates that are progressively younger right because there's a higher lower probability they'll already have children if they're if they're much younger right right and they're and if the guy is successful if he has status and resources and as other qualities associated with higher mate value then he will remain attractive to younger women I realize it's not your specific area of expertise but these days there's a lot of discussion about how early childhood attachment to parents influences mate choice later on this kind of general categorization of avoidant and anxious and anxious avoidant and all this kind of thing and again putting my hat on as a neuroscientist I think you know it it makes sense that the neural circuits for for attachment in childhood would be somehow partially or in whole repurposed for other forms of attachment we don't just tend to say okay that brain circuitry was for when I was a kid in now I'm an adult and so I'll develop this new attachment circuitry I'm guessing it evolves and and whatnot but is there anything interesting about that about childhood attachment strategies these of the stability of long term partner choice or is that too big of a leap for us to make here yeah well I mean I can offer some sort of informed speculation about it and and as you point it's not my my area of expertise but I know a little bit about it and I mean I think that you know a secure attachment style if both partners have a secure attachment style that's conducive to a long term mateship avoidant attachment styles avoidant people tend to have more difficulty with intimacy and also higher probability of infidelity and anxious attachment style I don't know can create problems of its own you know in the overly clingy dependent you know absorbing what what I call high relationship load so you know there's like mutation load which we all have certain number of mutations there's a you know parasite load there's also what I call relationship load so what is the baggage that someone brings to the relationship and they're probably correlated with the frequency of demand of immediate text message responses right well I think the frequency of demand like the the latent the expected low latency of text message responses yes plays out consistently in relationships you know early on there's a very low expectation of response and then as people get attached depending on their level of anxiety if they don't hear back from somebody really quickly where the mine goes is a is a very interesting aspect you know are do you become suspicious do you become anxious can you stabilize your own internal milieu or do you or do you need to see the dot dot dot dot that's coming back I'd love to see a study on that it's yeah yeah yeah yeah that's a good one and and my intuition suggests that your prediction about that would would pan out it would be the insecure that would really be you know getting upset if there were if there were not that immediate response to the text yeah I have a friend a female friend who deliberately quote unquote using her language trains her potential partners to be comfortable with a variable response latency but then I asked her if she's comfortable with a variable response latent she said absolutely not so there's an asymmetry yeah at least in that case this is almost certainly a more rare circumstance but I'd be remiss if I didn't ask about unconventional relationships these days I don't think it's just by virtue of living in California you hear more and more about monogamous as opposed to monogamous and various forms of polyamory that may or may not include the amery part you know passes in permission based on seasons circumstance and prior infidelities like okay somebody had a mishap early on you know you have one pass so to speak or and you hear this kind of language getting thrown around and yeah and it's intriguing to me because it it seems like an an effort to bypass some of the more if you will hardwired or at least culturally hardwired aspects of mate choice and sexual partner choice you know acknowledging jealousy but confronting it by allowing your partner to be with somebody else for instance I confess I have friends who have unconventional relationships I have friends with conventional relationships any thoughts on that polyamory yeah yeah I do have a couple thoughts on it I haven't studied extensively but I think that the way I would phrase it is that there's an attempt to overcome certain evolve features of our mating psychology but often in the service of other aspects of our mating psychology so what I mean by that is this so talk about polyamory first of all there's a sex difference on an on average that is men are more likely to want to initiate a polyamorous relationship than women there are lots of exceptions and I actually know of at least one exception personally friends friends of mine who are in a polyamorous relationship but the motivation for men is that evolve desire for sexual variety so it gives him access to a wider variety of sex partners which is part of our evolved sexual psychology especially for men women one motivation a women also have a desire for sexual variety on average tends not to be as great as that of men but also have it but some women agree to a polyamorous relationship as a mate retention tactic that is this guy in order to keep him she has to agree to the relationship and so and so the motivations for engaging in polyamory are somewhat sex differentiated on average on average who has lots of exceptions so now when it comes to sexual jealousy there is this recognition that there and in my the way that I would frame it there's this evolve the motion where we trigger sexual jealousy senior partner having sex or imagining your partner having sex or be falling in love with someone else and but interestingly and there haven't been studies on this but I know of this one polyamorous couple where they reported to me both of them reported to me she said she doesn't it doesn't bother her at all of her husband they're married has sex with other women she they allow it I think it's like every Thursday night or whatever they have the different couples have different rules but one time she saw him walking down the street hand in hand affectionately with a former girlfriend and she got extremely jealous so because it signaled an emotional connection so the sexual didn't bother the emotional did she happened to be bisexual and she and her partner said that he it really upset him when she slept with other men but it was fine if she slept with other woman when I think that's a fairly common thing that I among the men that I know that are in polyamorous relationships that yeah that's a fairly common statement yeah so he kept trying to in these internecine manipulations trying to encourage her to sleep with other women but not with men and in her case encouraging him not to get emotionally involved with other women but the sex was okay so I think that you know I think that in the modern environment you know we have a very rich and complicated evolved mating psychology and what we're doing in these novel forms are semi-novel because these things have a pretty deep history themselves that we we're attempting to maximize some of our evolved desires while men while keeping quiescent other evolved aspects of our sexual psychology like jealousy so satisfying or desire for sexual variety but keeping jealousy at bay and different couples do it in different ways so as you as you alluded to so I know one couple where live in Los Angeles and the woman from the woman said she gives her husband permission having a fear sleep with other women as long as outside of the city limits of LA you know and this other couple it has to be Thursday night you know and so different people have different strengths on but the constraints are are the specific and somewhat arbitrary to the relationship yeah yeah there's specific and and often in polyamorous relations people talk it out and and come to an agreement out what is acceptable on what's out of bounds so but but in a way I mean it in a way it's just you know we can't change our evolved sexual psychology I don't think what we can do is we can activate certain elements of it and keep others quiescent and and that's all good in a way we do in the modern environment so even to take it outside of polyamory pornography okay widely consumed internet pornography what what does that do well there's a big sex different there men tend to consume a lot more than women the forms of the pornography are different but in a way the pornography what it does is it parasitize man's evolved desire for sexual variety so they can in some in some sense psychologically experience sexual does this a variety of different women sexually without actually doing it by just looking at their computer screen and so in a way what you get another way of phrasing that is that we create modern novel cultural inventions in ways that satisfy our evolved desires and or evolve sexual desires yeah it's interesting with the kind of explosion of of online pornography have a colleague at Stanford in psychiatry on a Lemke who studies the dopamine system and she mentioned two things of interest one is that not only is there a tremendous variety of of experiences that are available to people to view in pornography but the the intensity is also quite high so much so that at least for young people who are observing a lot of pornography it's possible and there are studies looking at this now that their brain circuits become wired to observing sexual acts as opposed to being engaged in them which can be extremely problematic so it's a it's a sharp blade so to speak this pornography thing it isn't what it once was and it's evolving quickly very interesting so how should one frame all this so I imagine a number of people listening are in relationships or would hope to be in a relationship you know in terms of understanding what we are selecting for consciously or subconsciously it seems like there are common themes it's people want to feel attractive and attracted people want to make sure that there's stability of the relationship so when we hear about security oftentimes I think of this kind of warm oxytocin serotonin like thing but but this mate value seems so powerful in all this assessing mate value so how objective are people about assessing their own value in terms of finding securing and over time maintaining a relationship securing is dynamic because people age at different rates right is there a an objective metric of this stuff I guess you get a lot of statistics about somebody's image and you find come up with a value an average value based on the population but how should people assess themselves because it seems like one of the features that would be very powerful for leading to happiness of good partner selection with that stable where you one doesn't have to resort to these macavillion or diabolical or any of these other strategies would be to be very honest with oneself and how does one do that yeah great questions and and I don't think that the science has all the answers so a couple things so one is that I think people are generally pretty good at self assessing mate value and even self esteem has been hypothesized to be one internal monitoring device that tracks mate value so when we get a promotion at work or we get a rise in stats we feel an elevated sense of self esteem we get fired we get rejected we get ostracized our self esteem plummets so so our self evaluation I think does track mate value to some extent there are people who overestimate their mate value people high on narcissism or particularly in particular and some people underestimate their mate value another important element is that there's consensual mate value so that is if you ask the group of 100 people you know there's fair amount of consensus that this person's innate that person's a six okay but there are also individual differences in mate value so one example is I know a woman who's a professor and she places a high premium on guys who are deeply steeped in Russian literature which she is so that she can have in-depth conversations about Russian literature note to young men learn Russian literature well but this is high and it's a dimension of mate value this important for her but probably not important for a lot of other people and so whereas other people let's say might be let's say you're into football or or some sport then and another partner thinks sports are stupid you know then that's you know someone who's also into sports is going to be higher in mate value for you so there are these individual differences in components of mate which is good because that means if everyone were going after the same people and there was total consensus on mate value then there would be a lot of uh uh mateless people and a lot of problems in the world and a lot of dissatisfied people so so both are important the consensual aspects and the individually different differentiated components of of mate value but in terms of accuracy of assessment it's there are no good measures scientifically to do this because it's sufficiently complicated so I mentioned you know we've mentioned maybe maybe a dozen different components of mate value a physical attractiveness kindness emotional stability health status etc uh and uh and these aren't the only ones so uh why teach a course on psychology of human mating and I ask the people it's a large course a couple hundred people tell me what do women want in a mate and so I started with the blackboard this is back in the old days when there was a blackboard a piece of chalk and they said I want to mate who has a good sense of humor sorry sense of humor intelligent right hum time and so I go through this and I go through five blackboards and then I run out of space over what women want now I do the same for men and men kind of run out of the space ever about a blackboard and a half but but what that tells me is that these qualities are large in number and complicated in nature so you say you want a guy who's a nice and generous and they say yeah so like a guy who at the end of every month takes his whole paycheck and gives it to the the wineau uh homeless person well no not that generous you know generous toward me but not toward everyone else nice in general but not so nice that they're getting exploited so or even you know there's something you you can't be too healthy so yeah people that that's unit dimensional but you want a guy women want a guy who's confident but not too confident you know because too confident well many these are arrogant narcissistic or not sufficiently manipulable uh so so anyway so my point is that because there's so many different components of mate value and that they vary in uh amount so it's not just listing the qualities and summing them up they about very in amount it's a very complicated endeavor to assess accurately but I think people have a good intuitive sense of people's relative mate value especially if you've you're in a group and you've been able to interact with them for a long time and one indication is again that attention structure how many other people really want to mate with this person that's a good cue that they're high in mate value nobody wants to mate with you then cue that you're low in mate value it's me at the time when one is trying to decide who to ask to the prom you know there's a there's a complicated assessment based on who one would like to go with whether or not you're already partnered who would say yes who would say no because there's a there's a risk in rejection too because that um if I'm guessing correctly would would could lower one's own perceived mate value getting rejected right frequency of rejections probably doesn't lend itself well to increasing mate one's own view of their mate value right which is why why many guys have what I call a mating anxiety that is they they don't approach them because they risk getting shot down they're trying to maintain that number in the by reducing the amount of data right yeah very interesting but it's but it's it's it's uh it backfires in the modern environment so so there's a famous psychologist Albert Ellis who had mating anxiety and he assigned himself the task of approaching asking like I can't remember what the number was but let's say 50 women out on dates he lived in New York City so it was either a lot of women he could just stand still and they've streamed past yeah and uh and he assigned to like ask 50 women on a date you know every every week and he said after two weeks his mating anxiety disappeared because most of them said buzz off creep uh but he decided to get actually getting rejected didn't cause my world the collapse and it actually was okay and so he kind of ennured himself to this rejection and so um it ended up uh he ended up doing quite well on his mating life another point for cognitive behavioral dissensitization yes exactly he did ran the experiment um just a couple more questions earlier you mentioned self deception based deception um and or something of that sort self deception um that people aren't always trying to convince somebody else of something that secretly they know isn't true but that they deceive themselves um yes you can balance on that a little bit yes so well this is actually the this hypothesis is uh the famous evolutionary biologist Robert Triver's first advanced this hypothesis in the preface 1976 to Dawkins book the selfish gene and any subsequently written uh written more about it um both in scientific article and in a more popular book uh but the idea is that if uh the core idea is that successful deception is facilitated by self deception so if you really believe that in x then you're going to be a more successful salesman to convince other people of x so if you believe your let's say a ten in mate value you truly believe it even if you're not i'm going to have a more successful time convincing you that that i am as well and so the hypothesis is basically that people self deceive in order to increase the effectiveness of of actual deception okay but i think that there are people who um are are are so in one other dimension i'll mention to is that as that animals often take each other at our own word for things so if we're self confident people assume that we must have the goods to back up that self confidence if we're a quivering mass of insecurity people believe well we don't have the goods to back up anything you know and so people use other people's displays of their self confidence as a q to to their goods and it's in general pretty reliable q but then there are overestimates and underestimates as we've talked about like with narcissism yeah we see this with the job candidates you know you you are taught to look very carefully at the application and consider all aspects but ultimately you consider that also in light of you know how firmly someone believes in the vision of what they're trying to bring to the profession yeah and um and that's a i think a largely a subconscious process and being aware of it can be helpful um but yeah when somebody's confident you tend to think that they're going to get where they say they're going to go and it and it acts as a bit of a of a heuristic for not needing the impulses that one then doesn't need to go vet all the information quite as carefully but if i guess if one is aware of it then you know to to dig deeper in uh to because it seems like there's a lot of deception going on yeah yeah yeah well and uh you know and and uh something we talked about earlier people high on psychopathy are very good at at deception i don't know whether they are good at self-deception or whether they're just really good deceivers you know so um but they can be very effective and um out in California you know you live out in California i'm sure you've seen your fair share of uh cases like that oh yeah i think um uh into across today's discussion in a various examples pop to mind of seeing these features in humans it's so interesting i i find the work that you do incredibly interesting i think this field of evolutionary psychology is fascinating and and um i hope uh i'll get i said it before but i'll say it again i feel like neuroscience and evolutionary psychology are are nudging towards one another and it's only a matter of time before um they merge in in some formal way i mean there is the work for instance on polygamist versus monogamous prairie voles and levels of visa pressin but it's a big leap to go from visa pressin in a prairie vol uh no disrespect to that beautiful work but to humans and say oh visa pressin inhaler are going to make you monogamous or something i think that's uh i probably got the direction of the effect wrong but you you get the point yeah yeah no i think you're absolutely right and and i think it it will happen i think it's starting to happen and and it will happen because uh getting at the neuroscience is getting at the underlying mechanisms that are driving the process so you know what an evolutionary perspective brings to bear is is evolve function um and ultimate explanation the selective forces that created adaptations the functions of those adaptations and the neuroscience brings well what is the underlying machinery that these mechanisms are instantiated in yeah i would be wonderful to collaborate someday maybe we'll do a brain imaging study on jealousy or something in uh i don't throw it you're you're the psychologist you would come up with the beautiful experimental design um i be certain that people are going to want to learn more about your work uh certainly we will give them links to your social media and other other sites you've written a tremendous number of really interesting books um tell us about your most recent book and maybe some of the others that if people are interested in these topics and they want to learn more that they could um explore sure um okay so well my most recent book is is called the when men behave badly the hidden roots of sexual deception harassment and assault and that book deals with conflict between the sexes sexual conflict and so it deals with them uh both in what what what what what i call mating market conflicts uh some of the topics we've been talking about deception in internet dating and things like that second is conflict that occurs within mating relationships of the sort that we've been talking about as well financial infidelity emotional infidelity the sexual infidelity hoping with conflict within a relationship and i actually have some suggestions for strategies for coping with conflict within a relationship coping in the after uh dealing with the aftermath of breakups so often there's an asymmetry one person wants to break up the other doesn't so i talk about coping in the aftermath and then i also talk in this book um when men behave badly about some of the uh darker sides of human mating like intimate partner violence um stalking sexual harassment sexual coercion so that's what that book's about and i think it um you know it's gotten well-reviewed and people find it very useful in understanding what is otherwise a lot of baffling phenomena you know why do men and women seem at odds with each other in so many domains why do some of these recurrent forms of sexual conflict occur so that's what that book's about uh my previous book so my my first book which i've had the good fortune to be able to revise a couple times uh deals more broadly with human mating strategies it's called the evolution of desire strategies of human mating and gives people a broad overview of what people want in a mate uh tactics of attraction tactics of mate retention uh and so forth throughout the whole mating process serial mating causes of divorce and so forth uh and then um even more broadly i have a textbook called evolutionary psychology the new science of the mind which uh is in its sixth edition right now and it's the most widely used textbook in evolutionary psychology around uh north america in europe and and and actually it's been translated even into arabic and other countries so that deals somewhat with mating but also deals with survival problems or evolved fears and phobias uh issues about kin and family extended family friendships social hierarchies status hierarchies um yeah warfare and other topics so the evolutionary psychology textbook is the broadest book and then maybe the second broadest is the evolution of desire strategies of human mating uh and then for those interested in conflict between the sexes the latest book when men behave badly fantastic uh uh i love your work i i'm so grateful for the clarity and depth and rigor with which you do it and you and you convey it to us i know um i speak for many people when i i just want to say thank you this is a tremendously informative conversation thank you uh it's been a delight to talk with you and i hope we do engage in that uh research collaboration of merging neuroscience and evolutionary psychology let's do it all right great thank you david thank you thank you for joining me for my conversation with dr david bus be sure to check out the link to his website in the show caption and be sure to check out his new book when men behave badly the hidden roots of sexual deception harassment and assault if you're learning from and or enjoying this podcast please subscribe to our youtube channel that's a terrific zero cost way to support us in addition please put any questions you have in the comment section on youtube and also in the comment section you can make suggestions about future topics for the podcast or future podcast guests that you would like us to host also check out our sponsors mentioned at the beginning of the podcast that's one of the best ways to support us in addition please subscribe to the podcast on apple and or spotify and on apple you can leave us up to a five star review and you can also provide us questions and feedback we also have a patreon it's patreon.com slash andru huberman and there you can support this podcast at any level that you like in many episodes of the huberman lab podcast we discuss supplements while supplements might not be for everybody many people derived tremendous benefit from them for things like sleep and focus and other aspects of human performance and daily life one issue with supplements is that many of the supplement companies out there are subpar with respect to quality and they are not precise about the specific amounts of the various supplement contents that they include for that reason we partner with thorn thorany because thorn supplements are known to have the highest levels of stringency in terms of the quality of the ingredients and the precision of the amounts of the ingredients in other words what's listed on the label is what's actually in the bottle if you want to see what supplements i take you can go to thorn.com slash the letter u slash huberman there you can see the supplements i take you can get 20% off any of those supplements and if you navigate further into the thorn site through that portal thorn.com slash u slash huberman you can also get 20% off any of the other supplements that thorn makes thank you once again for joining me for my discussion with dr. david bus about human mate selection and strategy and many other extremely interesting topics today and last but not least thank you for your interest in science.