Science Magazine Podcast
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Promo
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Music

Interviewer – Kerry Klein
Finally today, I'm here with news writer Carolyn Gramling, who's here to give us a rundown of some of the recent stories from our daily news site. So Carolyn, our first story is about disappointing news from a malaria vaccine trial.

Interviewee – Carolyn Gramling
Yes. This has been an ongoing trial. They actually presented the first results of this large-scale trial, which is to test this particular vaccine for malaria in sub-Saharan Africa. And it's the first phase III trial – which means it's a very large-scale trial – for a malaria vaccine. And last year, they presented the first results from it on older infants and toddlers, and they found somewhat promising results, so that they were sort of feeling hopeful about it. They found that it prevented malaria in about 50% of the children. But this year they were looking at some more of the data, and they presented results from even younger infants – so about 6 to 12 weeks of age. And what they found was that instead of preventing malaria in 50% of the kids, it was only about 30%.

Interviewer – Kerry Klein
So this was really a much lower effective rate than what they had found last year.

Interviewee – Carolyn Gramling
Yes. It was somewhat of a disappointment, I think, although they are still spinning it as somewhat hopeful. It doesn't mean that they are giving up on it.

Interviewer – Kerry Klein
Do they have any sort of explanations for why this might be so much less effective amongst younger babies?

Interviewee – Carolyn Gramling
They have a couple of ideas about why that might be, and I think these are results that they're going to be continuing to look at and present in a couple of years in 2014. But what they suspect is that younger babies have less developed immune systems, that they may contain still some lingering antibodies from their mothers. And it may also be just that where they tested the vaccine before was in places where there was a more moderate number of cases of malaria, and they were testing it this time in much more malaria-prone areas.

Interviewer – Kerry Klein
And like you said, this trial is ongoing; these are only early results. When is the trial slated to be over with?

Interviewee – Carolyn Gramling
Well, they're hoping to have all of the data processed and analyzed by 2014, and that's when they're actually expecting to present the final results of the trial.

Interviewer – Kerry Klein
Now, why is it so difficult to create a vaccine for malaria?

Interviewee – Carolyn Gramling
Well, it's interesting. Most vaccines actually for bacteria and for viruses, they have maybe a 90% effectiveness rate. In this case, you know, 50% was good news last year when they found it. And that's because the malaria parasite is actually really difficult to target. It has a very complex lifecycle, and so they've found it to be really tricky to find an effective vaccine for. In this case, they're not saying this is a complete waste. At this point, they're still hopeful for it, and also that they want to combine the protection from this vaccine with, for example, bed nets – which is another way of preventing contracting malaria.

Interviewer – Kerry Klein
And disappointment aside, this is still the furthest that any malaria vaccine has come within clinical trials.

Interviewee – Carolyn Gramling
Yes. This is the first case where they've actually done a phase III, large-scale test of a malaria vaccine.

Interviewer – Kerry Klein
Well, I look forward to hearing the results. Moving on, we've got a story about the culinary preferences of human ancestors.

Interviewee – Carolyn Gramling
Yes, indeed, and how they are actually different from ape ancestors. There was an interesting shift that happened about four million years ago – we don't actually know exactly when – where the diet of early hominins – early human ancestors – changed from being primarily fruits and seeds to being grasses.

Interviewer – Kerry Klein
So we knew that that transition probably happened at some point. So what's significant about this study?

Interviewee – Carolyn Gramling
Well, one thing was that they were aware that this happened because they noticed changes in the shape of the teeth. They saw that they began to have thicker enamel,

larger molars and premolars, which does suggest a change in diet. But they weren't actually able to say for sure that that change in diet had occurred.

Interviewer – Kerry Klein
So how did they determine that in this study?

Interviewee – Carolyn Gramling
Well, what they did was they actually found that there's a new technique that they're actually able to use to look at fossilized teeth. In the past, they weren't actually able to sample these for chemical analyses because it was a little bit too destructive to the fossils. But now they're actually able to do that. And what they were looking for in the tooth enamel was carbon isotopes. So the stable isotopes of carbon-13 and -12 occur in particular ratios in different kinds of plants, and you can actually use that – how that accumulates in the body – to track what the creature was eating, what the individual was eating.

Interviewer – Kerry Klein
Oh, very interesting. So what does this tell us in general about, you know, early human evolution?

Interviewee – Carolyn Gramling
Well what they found was that, they looked at these three individuals who are from a particular species that lived about four million years ago, and the fossils were found in Chad – what is today Chad. And the species were called *Australopithecus bahrelghazali*.

Interviewer – Kerry Klein
That's a mouthful.

Interviewee – Carolyn Gramling
Yes. They're actually very closely related to the more famous fossil, Lucy, which is an *Australopithecus afarensis*. And they looked at the teeth of these three individuals, and they found that they actually showed the carbon isotope ratio that is more distinctive of grasses, as opposed to fruits and seeds that were found in the forests. It suggests that these individuals were actually beginning to adapt, that they were no longer just sticking to the forested areas, but they were actually learning to adapt to more open grasslands.

Interviewer – Kerry Klein
How interesting. And our third story is a really strange but incredible mix of science and art.

Interviewee – Carolyn Gramling
Yes. There's a movement out there, so to speak, to use dance as a way of expressing one's scientific research. And, you know, we actually have a contest that we hold every year here called Dance Your Ph.D. And so there was actually a team of scientists – well, it was a scientist and the artistic director of a theater and dance department – and

together, they were interested in using dance as a way to communicate science to the public.

Interviewer – Kerry Klein
How did an idea like this get started?

Interviewee – Carolyn Gramling
Well actually, I think Dance Your Ph.D. was somewhat of the inspiration for some of this. They wanted to sort of talk about the scientists' research and find a way to sort of do this communication, and they had a grant to do this. But as they started exploring how to do that, they got a little bit caught up with the idea of could you actually use dance, not just to explain results but to try and assess hypotheses?

Interviewer – Kerry Klein
So this isn't just interpretative dance, it's actually sort of feeding back into the original science?

Interviewee – Carolyn Gramling
Yes, exactly. What they did was they had these dancers inside of a cage – which sort of simulated the walls of a cell – and they wanted to figure out could we tell them to move in certain ways, like run over on one side of the cell only, or never increase your speed as you bounce into each other? And can we use the dancers to simulate large molecules within a cell and figure out how do those molecules bounce into each other and interact? And if we tell them to do all these things, can we sort of develop an idea about whether or not a particular hypothesis of movement is a bad idea, or worth pursuing further?

Interviewer – Kerry Klein
So has there been any actual published research to come out of this?

Interviewee – Carolyn Gramling
As a matter of fact, there has. There was an article that was published online this month which showed basically that using this dance motion – which they call bodystorming rather than brainstorming – is an effective way to get a quick assessment of whether a particular hypothesis is even worth pursuing. And they found that it actually is an effective shortcut to doing that.

Interviewer – Kerry Klein
How cool. And what else have we had on the site this week?

Interviewee – Carolyn Gramling
Well, this week on *Science*NOW, we have stories about a new analysis of Einstein's brain – a long-awaited story – and also a story about are we overestimating drought worldwide? Is the model that we're using causing that overestimation? And on our online policy blog, *Science*Insider, we have ongoing stories about the aftermath of the election. And in particular, we're looking at the three candidates who may potentially

lead the House Science Committee. So we have interviews with them and close looks at each of them.

Interviewer – Kerry Klein
And this is in the U.S.?

Interviewee – Carolyn Gramling
And this is in the U.S. And finally, on *Science*Live, we have a live chat on crop genomes and GM crops, and what will the food of the future look like? So stay tuned for all of those stories.

Interviewer – Kerry Klein
Great. Thanks, Carolyn.

Interviewee – Carolyn Gramling
Thank you.

Interviewer – Kerry Klein
Carolyn Gramling is a news writer for *Science*. You can check out all of our news at news.sciencemag.org, including daily stories from *Science*NOW, and science policy from *Science*Insider. And while you're there, be sure to check out *Science*Live, a live chat on the hottest science topics every Thursday at 3 p.m. U.S. Eastern time.