

This unedited transcript of a continued webinar is provided in order to facilitate communication accessibility for the viewer and may not be a totally verbatim record of the proceedings. This transcript may contain errors. Copying or distributing this transcript without the express written consent of continued is strictly prohibited. For any questions, please contact customerservice@continued.com

A Brief Examination of Starkey's Balance Assessment Tool

Presenter: Justin Burwinkel

And welcome everyone to today's webinar, a brief examination of Starkey's balance assessment tool. Today's learning outcomes are identify the CDC study protocol components, identify where to find the balance assessment tool within my Starkey, and discuss different patient populations that could benefit from the balance assessment tool. We are so pleased to welcome with us here our presenter for today, Justin Burwinkel. Justin, I'll hand things over to you. Thank you so much for the introduction and I'm really pleased to be able to give this presentation today.

This has been an area of focus not just for Starkey, but for myself personally for, gosh, more than years now. So it's really exciting to be able to share this information about this exciting new feature. And our interest in this goes back to more than a decade, to Franklin and the research that his group at Johns Hopkins has been publishing. And going back to then, I think it was 2012, they released this paper that published findings that they had found with a large population of adults that hearing loss and the degree of hearing loss was affecting rates of falls among the population that they had studied. In fact, they found that for every 10 decibels of hearing loss, there was a 40% increase in the rate of falls being reported.

So even a patient who has even a mild degree of hearing loss can have upwards of three times more falls risk than a patient who is otherwise the same but without hearing loss. So that coupled with the fact that we as audiologists, we have training, graduate training and background in vestibular diagnosis and treatment, we can play an important role and probably play a greater role than we have been in falls risk management. And as one of our colleagues wrote, our importance in falls prevention is undeniable. And those are some bold words, but particularly since we know that fewer than 15% of audiologists are commonly performing falls risk screening as it is right now. And there are a number of reasons for that.

As I talk with our colleagues, time constraint seems to be the biggest one. Others have questions about scope of practice. Is it within our scope of practice? And I like to put that one to bed really quickly. All of our professional organizations have falls risk screening listed as part of our practice.

But what that really speaks to is perhaps we don't feel like we're adequately trained or, or even though that it's interscope of practice, there's not a clearly defined procedure for us to follow to actually implement it. Other audiologists say, well, you know, I focus more on hearing related issues. I fit hearing aids, I leave balance related items for those audiologists. Who have specialized in vestibular. And I'm.

I'm here to share with you that our balance assessment feature is designed to address all of these concerns, actually to make this really approachable for all audiologists to be doing with their patients. So, you know, some of you might be saying, well, I don't have a lot of patients coming to me, you know, reporting balance problems or falls risk or worries about falls. And I would say to that, well, we know that fewer than 50% of patients are actually talking to their physicians about falls that they're already having. So it's just something that patients might not be open about unless we ask probing questions and seek more information from them. There are a number of reasons for that.

Many might believe that falling is just a, you know, normal part of the aging process, sort of a rite of passage, if you will. Others might fear that if they tell their healthcare providers or their loved ones that they've fallen, that that lead to them being placed in a nursing home where they lose their independence. And there is legitimate concern about that. Others might simply not be aware of their own risk factors, and that by having these conversations that could lead to interventions that could help them to reduce those risk factors for themselves. Now, this has been a concern for the Centers for Disease Control.

Obviously, this is a systemic problem. And they developed a, what they call the Steadi initiative to address this. I'll let Steadi say it in their own words. I've got a video clip that'll speak to this. But know that Steady Protocol, or Steadi initiative, is based on both the American and British geriatric societies best practice guidelines for falls prevention.

And that the study initiative is really developed to make those guidelines effective and easy and streamlined for clinicians like audiologists, like physical therapists, like pharmacists, like, you know, their. Their primary care physicians, to actually implement this. And it's. It's meant to be a team approach. So with that, I'll go ahead and play the video.

For us, the key to health is often balance, especially when it comes to reducing older adult falls. That's where the CDC's STEADI initiative comes in. Steadi helps healthcare providers implement clinical fall prevention.

That's because one out of four adults 65 or older will fall at least once this year. That's over 36 million falls every year. And projections show that falls are on the rise. The good news is that falls are preventable. An annual visit or anytime a patient suffers a fall is a good time to talk about reducing fall risk.

Steady has resources to help you screen, assess and intervene to help patients fall. Prevention starts with screening all patients age 65 and up for fall risk. If a patient isn't at risk for a fall, you can still do a few things to help them stay healthy and active.

If the patient is at risk, then it's time to assess the patient's modifiable risk factors and fall history after the assessment. That's when it's important to intervene to reduce the identified fall risk using effective strategies. This could be a referral for physical therapy, a referral to an eye doctor to evaluate vision impairment, optimizing medications, or referring to an occupational therapist who evaluates home

safety. Steadi offers tools you can use to help older patients. Visit the Steadi website to learn how to keep your older patients safe, active and independent it longer by preventing falls.

And it's that last piece about keeping our patients safe, active and independent that I think, you know beyond our training and, and, and vestibular. But those goals align so well with our goal of enabling hearing and communication and keeping our patients socially and physically active, because that is how we stave off falls. And I like to tell audiologists, you know, our foray into this with our patients can begin the moment we see them. When we go up to our lobby waiting area and we call upon our patients, be observant of how our patients move. Does, you know, when we call their name, does the patient need to use their arms to sort of push themselves out of their chair?

Do they show other signs of frailty, like slow gait, speed? By the time they get to our treatment room, are they winded or feeling fatigued? Are they using a walker or cane or even leaning on the arm of their caregiver or loved one that came with them? Are they shuffling their feet? Do they seem to be reaching out for furniture or the wall as they're walking to sort of steady themselves?

Do we see signs of bruising or other injuries on their arms and hands? These can all be clues to us that they might already be experiencing falls or could be at risk for falls. But those things are not comprehensive. And the goal of the Steady initiative is to cast a wide net. So they begin steady phase one with screening.

And to do this screening, they use what's called the Stay Independent brochure. And the Stay independent brochure has 12 questionnaire items that the patient can fill out while they're in your waiting room or, you know, as you'll see, we delivered this in in the balance assessment feature itself. But these 12 questions cover a Wide range of areas. And what I particularly like about the Stay in a Print brochure is that it's not just asking them the questions. You know, sometimes we go to the doctors and we're filling out our health history and we're wondering, like, why do they need to know this

information?

Well, with the Stay Independent brochure, they actually say why it matters. You know, for example, if, you know, they are asked, you know, have I lost feeling in my feet? I'll say, well, numbness in your feet can cause stumbles which can lead to falls. So it sort of helps the patient bring these risk factors that they may or may not have to the forefront of their mind so that they can understand and begin to appreciate how they can be affected by it and how they can potentially address it.

Now, phase two of the study initiative is assessment. And this is where the CDC is laser focused on identifying those modifiable risk factors, things that the patient can change or we can help the patient to change to reduce the risk of falling. So there are other non modifiable risk factors like age or sex or ethnicity or history falls, but we can't change those. We can't change the past, we can't change who the patient is, but we can change, for example, how strong their legs are or how much, you know, you know, how many home hazards they might have in their house or what their vision's like when it's corrected, what their hearing is like when it's corrected even. So phase two is really about identifying which specific risk factors apply to that patient so that it can inform phase three, which is the intervention phase.

So this is where the balance assessment feature can come in and be very helpful for us. It can sort of lift some of the weight off of our shoulders and that the balance assessment app can be self guided by the user to complete both the screening and, and partial assessment of their, of their gait strength and balance. So this is a great tool for a number of patients, particularly those patients who aren't showing signs of, you know, or willingness to have these conversations with us today. Maybe they want to do it on their own terms. In that case, you know, we can just offer this information to them, show them where it is in the app and let them know that they can do this on their own.

But you know, in talking with gerontologists who specialize in this area, I think one of the greatest opportunities is actually to give patients the ability to test themselves at home more regularly. So if a patient's lucky, they go to see their doctor Once a year and maybe at that once annual visit, you know, they, they are evaluated for their falls risk and that might be it for them. But you know, they can have a change in status that happens very quickly, anytime throughout the year. So if they're able to identify that change, they can potentially seek help earlier and get help before they begin falling and really enter what can sometimes become a really detrimental spiral of their overall health and well being.

So to find the balance assessment app, you would look in the My Starkey app on the health screen. For those of you who have fit hearing aids made by Starkey before, you might be aware that we have a Fall Alert feature. You would go to the same page to set up Fall Alert settings and you'll see that right above that is where we've put the start of the balance assessment feature. Then click the blue button, more information about the feature. It'll describe it in great detail to show them what's going to happen, talk them through each part, but I'll sort of just walk us through it together here.

So we'll go ahead and assume that we're clicking the start assessment button and this is what they'll see. They'll be greeted with an onboarding screen that'll outline, you know, what are the components of what you know, the balance assessment includes. So it'll have that initial screening, there'll be a series of exercises and then they'll be able to view the results on the next screen. It's going to give them some safety tips. It's going to encourage them to speak to their healthcare provider first.

It's going to encourage them to do this bounce assessment with a caregiver or loved one in the room with them. And at the very least it's going to suggest to them that they turn on their Fall Alert feature just in case, you know, God forbid they do suffer a fall, then at least someone would be contacted.

Following that we'll collect or the, you know, the feature will collect some demographic information. For the user this information is just their age and their gender. This helps us to personalize the result

interpretation for them.

The CDC has some age and sex based norms which I'll show you in a moment that can affect how we evaluate their performance on, on a some of the functional measures.

So at the beginning you'll recognize these questions from what I showed just a few minutes ago. But we have a digital version of this built into the feature that asks them these 12 questions. And in a similar manner it has these why it matters blurbs. So that as they're answering the questions, they get the benefit of that through the balance assessment feature as well.

Now, if they answer one of three key questions or they have a total of four points calculated for this assessment tool, they'll be prompted and encouraged to see a healthcare provider before going into the functional gait strength and balance tests. They can elect to continue to do those gait strength imbalance tests, but it will prompt them saying, you know, it looks like you have some concerns. You probably should go see someone for a more comprehensive evaluation. If they don't answer yes to one of those three key questions or they score fewer than four points on that questionnaire, then they'll just be acknowledging app will just acknowledge that they've done this screening and allow them to continue on. Now, the first functional measures are.

Well, the first one is the four stage balance test, which we call the four standing exercises. It's just the test of static balance. The second One is the 32nd chair stand test, or what we call the chair stand. And finally the fourth one is the timed up and go test. We call it the timed stand and walk test.

Before they begin actually doing the functional measurements, they'll be given further instruction on how to set up the environment for themselves. They'll be asked to get a straight back chair to place it against the wall so that it doesn't slide behind them. They'll be told to gather a measuring tape so that they can measure out their walking path. For the timed up and go test, they'll be encouraged to make

sure that the room is clear of obstacles, that they have a clear walking path, and also to have a desk or table that they can set their phone down onto while they're doing the tests. As well as the, you know, use the steady, you know, the solid surface as a way to steady themselves in case they're feeling off balance at all during those static balance tests.

Then it'll show them, you know, you know, position the chair against the wall and then ask them to turn up the volume. So they'll be given both written and verbal instructions as well as illustrations to help guide them through each of these tests. And I'll show you what that looks like now. So for the standing balance test, it's going to just give them an overview of the different poses that they'll be standing in as they go through the test. The first is the side by side, then you know, big toe to instep of the opposite foot, then the tandem stand and then finally a one leg stand is one at a time so they'll be given instructions for each one.

Very thorough. And then you'll notice that while the exercise is going on, the screen is very boring. There's not animations on this. This is very purposeful on our part. Once the test actually begins, we want them to keep their head steady and for them to look forward, so we don't actually want them looking down at the phone.

So through our focus group thing, we found that by making the screen as boring as possible during that part, it helps keep the patient on task.

And then at the end of that, if everything goes well, they'll be able to progress onto the second, third or fourth stage of that balance test. If they, you know, they showed too much wobbliness or if they had to take a corrective step to correct their balance during any of those, then they'll be presented with the opportunity to try. If they don't feel like they're going to perform any better next time, then it'll allow them to skip to the next exercise. And when I say next exercise, I don't mean the next standing pose. We will never let them skip to a harder scanning pose.

They need to prove to us that they can do the first one before they do the second one and the second one before they do the third one and so on, but they can skip to the next exercise, which actually would be the chair stand test. For this one, it's pretty straightforward. It's a test of lower muscle or lower limb muscle strength, how strong their legs are. Basically, they're going to sit down in the chair when the test begins, they're going to sit up, sit back down, stand up and back down as many times as they can. In 30 seconds, the hearing aids are going to again score this for them.

So it's going to keep the counter and then count how many times they're able to do this in that 30 seconds.

Again, they'll be given instructions on what to do and how this is done. At the very end, it's going to ask them if they use their hands or not. So if a clinician were doing this in their clinic, they'd be able to observe or reinstruct the patient not to use their hands while they're doing the test. So at the end of our balance assessment here through the app, it's just going to simply ask them, did you need to use your hands to do this? If they did use their hands, then they're not going to get a passing score.

They need to do it without using their hands, as they had been instructed. And finally, the last test or functional measurement that'll be administered is the time to walk. So for this one, they're going to be instructed to again have the chair against the wall, but to measure 10ft from the front of the chair, mark the floor. And then when they begin the test, it'll tell them go, they're going to stand up from the chair again without using their hands, walk past the marker on the floor, turn around, return to the chair and sit back down. You if they can do this in 12 seconds or less, they will get a passing score.

And if it takes them longer than that, then that is a sign that there are other concerns potentially.

And at the very end of the balance assessment, for each portion, the screening, the standing exercises, the chair stand and the time to walk, they're going to be given a score. So if they get the yellow exclamation point, that means that there are some concerns, meaning they didn't pass the screening measure or they didn't score within the range that the CDC has said that they should based on their age and sex. If they did great, they fell within those norms, then they get a green check mark. And if, for example, they skipped a test, they'll show a gray, grayed out, not completed indicator.

They can drill down a little bit further on each of these to see more details there. It'll explain to them, you know, what the test was really looking for, how it scored, how they could potentially do better.

So you can see the different examples here. If they passed, you know, show that green check mark, green congratulating them for doing so well. If they didn't do so well, it'll use sort of non threatening language, just saying, you know, there may be balance concerns here. We don't use pass fail language, but from a clinical perspective, no, that's what the CDC would be directing. But we use softer language just saying, you know, there might be concerns, you might want to go talk to your healthcare provider about them.

And then if, for example, we didn't have either their age or the sex inputted on that first page, since they don't have to do that, then we might not be able to interpret some of the results for them. In particular, the chair stand test has those age and sex based norms. So in that case we would just tell them, you know, how many stands the hearing aids detected during the test and then show them a table of where that would fall in line based on. And then they can sort of say, oh, in my mind, I, I know I'm 67, I'm a man. 12 reps is what I should have gotten and I only got 11, so I didn't do as well as I should have.

The app will keep a history of their past balance assessments. This can be useful for if they come back to a follow up visit with you. You can ask them if they've done it, they say yes and then you can sort of use this as a, you know, a conversation starter. You can track progress over time or they can, you

know, be encouraged to share these results with their healthcare, you know, physicians or other healthcare providers going forward. So it's nice that we keep a record there for them to be able to do that.

And then I'd be remiss if I didn't outline some of the findings from the research that has been done with Stanford Medicine. We've actually been in a multi year collaboration to bring this feature to market with Stanford. So I'll share with you some of the results of their phase one study. So during phase one of their study they had 250 participants ranging in age is between 55 and 100 with a mean of 78. So you know, we're well representing the target demographic for potential fallers with this.

Basically they administered the full C Steady initiatives protocols including screen functional balance measures. And they had three observers observing those functional measures. One was an audiologist, one was a physical therapist and one was a medical resident. Only one was in the room while the patient was performing the tests and the other two watched a video record of it. Then they were able to compare the results of those three observers observations with that of what the hearing aid algorithms determined for each of those individual tests.

So I'll show you what those look like. So for the first standing position, there was 93% agreement between those three observers and the hearing aids. For the second pose, the big toe to instep of the opposite foot, there was 91% agreement. The third pose, the tandem stand, this is the most important one of all. This is that they need to achieve and pass in order to pass this static balance test.

So they need to be able to hold this pose for 10 seconds or longer to get a passing score. And we had 86% scoring agreement for this test or this pose between the clinical observers and the hearing aids. And finally the one foot stand, which is sort of just the cherry on top because it doesn't affect scoring outcomes. But we did again have 90% agreement between the clinical observer and the hearing aids for that one. Moving on to the 32nd chair stand test, this one we saw a very strong relationship

between what the hearing aids were able to detect and what the clinicians counted.

And finally, the mean duration for calculating how long it took the patients to complete the timed up and go test was. Again, there were no statistically significant differences between those clinical observers and the hearing aids. So for all three tests in combination, there was strong reliability and accuracy when using the clinical observations as the ground truth. Now, finally, I want to talk just briefly about the final field validation study that I conducted right before we launched Evolve and this feature as part of that program. So for my study, we had 14 participants.

I split them into two different groups. The first group received a demonstration with me in the clinic where I actually went through the balance assessment feature, completed a balance assessment with them. So they were able to see, you know, what they were supposed to do, get feedback from me as they were doing it before they took it home, and then completed an at home trial. The no demonstration group or no demo group, I basically just showed them where it was in the app and asked them to do it at home. Then they took it home, completed a balance assessment, at least one there, and then came back to see me, and then we completed it again in the clinic there.

So between both groups, I was able to compare in clinic versus unsupervised at home, and then also look at differences between the demo and no demonstration group. For this, we found no significant differences in scores across groups or environments. However, I will say that there was a slightly greater variance in the data when unsupervised versus in the clinic with me, and in particular among that no demonstration group. But again, there were no statistically significant differences for either of those.

And then finally, the last stage of steady, where the rubber meets the road is the intervention phase. And this is where we can do things like give the patient if, you know, we find that they're at risk for falling, encourage them to set up the fall alert feature with their hearing aids. We developed a high

sensitivity setting for the fall alert feature, which would be great for someone who's at risk for falling. When older adults fall, it's not like you see in the movies. They generally fall pretty slowly.

So a high sensitivity algorithm for that detection is actually really beneficial. So be thinking of that if you know someone's going through a balanced assessment and they're showing concerns, encouraging them to not only set up the feature, but perhaps consider using the high sensitivity setting for them.

But you can also make other referrals. It's always okay to refer back to the primary care if you're a clinic that's asking about medications. For example, you might have your, as part of your intake be asking about what medications they take, if they're taking anything that's ototoxic or something that might be exacerbating 10 of symptoms, for example. But you can also begin thinking about does it affect their balance, does it asleep, their alertness, are they taking, you know, diuretics that might cause them to get up at night? Walking to the bathroom in the dark is very risky behavior for someone who's at risk for falling.

Um, also, you know, if they're taking antidepressants or sleeping aids, those can cause drowsiness, which could also be potentially risky. So encouraging the patient to go talk to their pharmacist about that is also totally appropriate as well. The CDC actually developed a lot of its materials directed towards pharmacists, actually. So it's. They see it as an avenue for patients to get good access to information because you don't necessarily even need to set up an appointment to go see your pharmacist.

Right. So, good resource there. In some clinical settings, it might be appropriate to make lateral referrals to physical therapy or occupational therapy. You can always refer patients back to the CDC study webpage. There's a lot of good information on there for clinicians and for patients and their families.

And then additionally, I would encourage you to go to the National Council on Aging's website. They have evidence based programs, a full list of, you know, valid programs that you can suggest. Many of them are community based, usually free, either offered through community centers or senior centers or the ymca. But there are a lot of great programs like Tai Chi or Silver Sneakers, the Otago Exercise Program. There's some home hazard removal programs that are really helpful, but it'd be good for you to know what's actually available in your local area so that if you do have a patient who expresses concerns or tests poorly, you have a place where you can direct them to, you know, get some meaningful help.

So with that, we've talked about the STEADY initiative and how we've been able to implement it into the balance assessment feature. We've briefly touched on the research that has been conducted not only at Starkey, but at Stanford Medicine. There's a white paper that should be available on our Starkey Pro site that you can dig into that a little bit deeper if you so choose. But also know that the balance assessment feature is about empowering you, the audiologist, to be able to offer these services to your patients in a way that doesn't place huge burden on you, but also that enables them to potentially detect changes in status early so that they can get interventions that may help reduce the risk for falling. So with that, what questions might some of you have?

Hi Justin. So I don't see any questions in, but I'd like to give it just a few more moments to see if anyone's typing again. We would love to have your questions addressed today. If not, please feel free to reach out to Justin after the webinar if you have any questions.

And I'm not seeing anything coming in. So I would just like to thank you again, Justin, for a wonderful and informative presentation today. Just a reminder, for those of you looking for CE credits, make sure you look for your exam after viewing the course. All right? Thank you.

Thank you everyone for attending. Appreciate this opportunity. Thanks. Have everyone have a great day.