

Meeting with Occupational Therapists

Meeting duration: 35 minutes

Rochelle Heighton, Occupational Therapist

Lori Young, Department Therapist

Amelia LeBlanc

Cameron de Winter

Connor Lobb-Macdonald

Michael MacGillivray

Tristan French

Michael: What we wanted to figure out was what angle would be the best and what type of harness would be best to lift someone up from a chair to cause the least amount of strain to the person?

Lori: Is there a reason you came up with this idea I'm just curious?

Tristan: We wanted to make a product in between I know there's heavy duty

Lori: I know there's like a Hoyer lift but there is something we use that's an in between we have something we use it's a sit to stand to lift.

Connor: Is that one where your harnessed in and you grab a bar and your feet go on the machine?

Lori: Yes, so what you guys are looking at is in between those two?

Connor: So yeah were looking into something even more in between those two because I know there's walkers for people with low strength mobility to help them get around and what not.

Rochelle: "Brings in hydraulic chair lift that the user sits on and assists the user when they are trying to stand up by pushing them up" its weight specified and you set the weight so when you sit on it it will boost you up.

"Mike tests it out"

Lori: But I don't love this for people so if you could make something better.

Cameron: has this ever been adapted to the seat of a walker because some walkers have a seat on it so if you're tired.

Rochelle& Lori: No.

Lori: so, you're thinking of something on the walker.

Cameron: Yes, so if you're sitting and the walkers in front of you it'll lift you forward.

Connor: So, we were thinking of something like a stand lift so that it'll help you from a sitting to a standing position.

Lori: Right I know what you mean.

Connor: We also wanted so that you're not restricted in movement like the stand lift you need a health care provider to help you move so we were thing of something that can still help you move but is lightweight.

Lori: And it's something you want them to use their self?

Connor: Yes, like a stand lift without the additional help.

Lori: Yeah without having to hook it up because yeah, we have to hook it up every time. So yeah let's see it.

"Mike shows AutoCAD drawings"

Michael: So it's like a normal walker so we found one on the internet and based the handles off that and then just adding a motor somewhere we don't know where were putting it yet but it would also hook onto some sort of harness.

Cameron: We were thinking a harness or a vest something that wouldn't be pushing just from their hips so if they have hip issues it'd be like.

Tristan: To start off I think we need a base where injuries occur most.

Lori: well it's like shoulders and if I'm helping someone up from a chair like if I'm going to help you up they would grab under the arms and pull I'm not saying it's the right thing to do but that's what you'd do so it's going to be shoulders and back, people find the most their shoulders hurt the most because people yank on their shoulder.

Connor: so yeah if you're a lot stronger than me and you're ripping on my arms then it's going to come out and.

Lori: and so yeah, I don't do it that way.

Rochelle: So yeah, the transfer of weight is kind of important so the way that works in order to get some up into standing you get your weight over your feet we say nose over toes so you have to get yourself up over your feet to be up and standing so if you needed assistance a lot of people would just pull straight up so you have to get them to lean forward and get up.

Lori: So, think about that when you're making your device.

Mike: So, we need to incorporate the upper body too.

Lori: So yeah you want your thing to be tilting a bit so if you've seen those recliner lift chairs that's the same idea that they're going up.

Lady1: but that's also the movement they're afraid of because of falling forward. You want to give them that feeling of safety and security of not falling forward that would be helpful.

Connor: Cause I kind of noticed last week like 3 main stages to getting up like you say 1 getting up nose over the toes and 2 getting your bum up and 3 just pushing up. Do you find that anyone has issues with that like does anyone get really injured with those steps?

Lori: Your talking about the patient?

Connor: Yeah

Rochelle: So, it takes them to exercise as it takes more muscles to go from sitting to standing then it does to walk. That's why it's harder to get people from sitting to standing. Once they're up though.

Cameron: That's why we feel it's good to incorporate this with a walker.

Lori: So the seat to floor height is huge that has a big impact on how someone gets up if it's really low but in terms of them getting injured ah the hardest part is getting from here to here the initial push off is the hardest part often depending on the person because once they get to about here they're fine but also another problem is fear its talking your hands off and then grabbing they're walker

Cameron: So, they're kind of ceased there.

Lori: Yeah so, they feel the oh god what do I do here and it's not so much injury it's just difficult for them.

Rochelle: Often they have one good leg and one not so good leg so one knee doesn't bend or one hip so then one leg is out ahead and one leg is taking more of the weight so then the boost helps because they're relying on their arms because they can't use both their legs to stand up so the leads to bad shoulders and arthritis.

Lori: So, I just don't understand how you're going to put something in front of them, how are you going to pull them forward?

Amelia: Some sort of strap hopefully so were just kind of wondering where to put it.

Cameron: Yeah like where would be the best part on the body to lift them like a couple pulleys from the chest area maybe one at the hip area in a vest or?

Rochelle: So, have something come in front.

Lori: So yeah like where are you or how are you going to get the momentum.

Rochelle: Because the walker is going to be behind them, right? Like if they're sitting in the seat.

Mike: We were thinking the walker would be in front of them.

Lori: I'm not sure I understand this then.

Mike: The walker would be right in front of them here and so you were saying there needs to be something to push them from the back.

Amelia: Something to counteract the weight.

Mike: Yeah so, we were thinking of them facing the walker and still having something to push them up.

Lori: Oh, so I think I'm not understanding you're trying to use the walker as the lift system out of a chair.

Amelia: Yes.

Lori: Oh, so I was picturing them sitting on a walker like I thought you wanted to invent a walker that would push them to stand up and you do but in a different way. So, you know what I mean for like a rollator.

Cameron: The walker has the lift in it and so it can be adapted to like any chair you want to make it versatile.

Lori: Okay can I tell you one big thing? Weight.

Amelia: That's why we're trying to figure out the counter acting weight.

Cameron: Very likely they'd get up and tip over.

Lori: So what's going to happen like any walker I've ever seen like any lift we ever use they're heavy so if you're going to use it on the walker it's going to tip as soon as you put any type of weight on it and you even think of the smallest person and I like the idea of you guys making this seat rise like that's what I was thinking you were doing. The walkers going to tip right Rochelle?

Rochelle: Yeah that was going to be my next question.

Lori: So, you're thinking a big counterbalance but that's going to be heavy when lifting they're lifting it up so that's my worry.

Cameron: Yeah so that is our biggest issue.

Lori: So I was thinking if you made a rollator walker with a seat came up so so but this is something people use especially for going in the community along with the wheels and what happens even on that they can't get out of so you made something like so that's how they said say they're open I need to rest and then sometimes they can't get up from that where you were pitching that too right so I'm making something there because I don't think you can make a Walker that would lift someone unless it's really heavy and then we'll be able to use it.

Rochelle: Well they're engineers so.

Lori: Well yes so maybe you can! I'm just thinking you're going to have to have something weight capacity.

Cameron: Yeah so, it'd have to be heavy and it'd have to have wheels that can be locked.

Lori: And whatever you counterbalance is probably going to have to come off know I know this is just a project, right?

Mike: Yeah.

Lori: I don't know how important functionality is, but this is just what I was thinking.

Amelia: No, we do want to figure this stuff out to better help our design.

Lori: So even right now if I have a lot of people will do this they forget to use here so they do that and it just tips there so they're like trying to get up there, there will always been someone to push that's why I'm worried you're thinking of having something here that you strap on and then how it will work.

Amelia: Were thinking of having kickstands at the bottom to add more support so when you are being lifted up there would be the extra support.

Lori: Yeah because if you look at our Hoyer lifts they have these great big supports so you're going to have to have a big counterbalance.

Mike: If we had the legs like that, we need a way for them to contract back.

Lori: So, if you have the counterbalance it can mechanically go back.

Connor: I was looking into some that have bars to pull yourself up unlike the sit to stand with your feet strapped in.

Amelia: Which isn't independent, and you still need someone to strap you in.

Lori: So, you guys are still looking to maintain a bit of independence.

Michael: Yeah.

Rochelle: Yeah, it's complicated there's just a lot of parts that could go wrong with that were looking for the boost if that makes sense.

Connor: So, if we were to have something that would lift you up, I don't know if we'd need the counterweight because you're pulling the person forwards your pulling this back.

Cameron: We definitely need it to be heavier in the front.

Connor: They can just have walker push against the chair.

Amelia: Then that's not safely secured then.

Lori: So where are you hoping to use this?

Amelia: We're hoping to make a prototype of it.

Lori: Where do you want to use it like everywhere, out and about?

Cameron: Well I think in nursing homes and at home they could use it to.

Lori: Well here's just an idea like you guys are the engineers and I'm not but what if you had some sort of hookup at home that you could hook into the floor to create the counterbalance rather than adding the counter balance to the wheel chair like a wire that would hook into something and counterbalance it enough or something. Super gadget.

Connor: We should actually make something like especially around a nursing home so you could actually implement that.

Rochelle: Like in front of a bed or chair.

Lori: You'd have to worry about tripping but if it was fixed you went to that spot and you sat, and it was fixed in the ground to use. You guys don't know what these are but maybe like tie downs.

Cameron: So, something in the tiles that it could click into.

Tori: So, we have tie downs for wheelchairs so it's like when you're going onto a bus you hook into it, so you don't move.

Cameron: Are these tie downs something people must tie down or click into it?

Lori: They're called tie downs, but you click into them.

Connor: What if we had some sort of suction system that would suction into the tiles or if it was carpet some sort of Velcro for it.

Tori: Yeah that might work something like that.

Rochelle: In terms of the pull of the harness it needs to come from the bottom.

Cameron: How would you suggest going around them?

Lori: I think you could just use the same one we used for the stand lift. So, this is what we use for out sit to stand lift. It's just around the back because it's going to slide up anyway.

Rochelle: Maybe a transfer belt would work but I'm not sure about it.

Lori: The people that use this have good sitting balance so yours might be different with more mobile people. You want to make sure it can hook into both sides. This is a sit to stand sling.

Connor: Do you find any problems with this like does it hurt people?

Lori: Yes, that's what I was just going to say having it smaller makes it worse and it may ride up. So, people do complain but they get used to it so I don't know if having less area would make it tighter.

Connor: Does this bother their shoulders at all because you were talking about that as one of their problems earlier.

Lori: No because this is where the pressure is and so I like the under the butt idea, but I don't think they can get it under there because that's the whole problem.

Cameron: We were thinking maybe a clip on the mid-thigh because that might be easier than under the butt.

Lori: I don't know because that's just going to go straight up. You have to get forward. Often if people have problems from going sit to stand it's the leaning forward that is the biggest struggle, they can't bring themselves forward.

Rochelle: Sometimes we just practice that moving forward exercise. Some people just need that little push on the shoulder as a cue to start leaning forward and to get up.

Lori: Fear is a big problem because if you've fallen before you're almost scared to get up. You take for granted being able to stand up on your own.

Michael: Do we have to worry about them being pushed forward for injuries because it might be too much for them.

Rochelle: No, I don't think so. The worst thing would be tightness.

Lori: Maybe with the strap for yours you can avoid the crossing part here which will avoid some of the squeezing that's done. Because it's really just that pushing forward motion you need.

Amelia: Because I think that was our original thought was to get something up like that, but we weren't sure which way.

Connor: Do you find they have problem of them getting pushed up and them off their balance.

Lori: No because we wouldn't use it then. But that's not typically the issue.

Rochelle: You may still want something that blocks their knees to allow them to straighten their legs because I don't know if this is going to do it.

Cameron: That would probably need to be contractable too then so they can still use the walker.

Lori: Yeah because I think you will need that counterbalance when I see what you're talking about. Because again it's going to pull you forward. You don't want your feet to be sliding forward you'll need them to stay in the same spot.

Rochelle: Anymore questions?

Cameron: From your guys opinion do you think this adaptable from a chair as long as we can get everything to work.

Lori: If this doesn't work out you can always use one of these and adapt that to a walker because I've never seen that been done before.

Rochelle: So yeah there's elevating wheelchairs but that's a different thing.

Connor: Another question I have is with other patients do you hear any common complaints with their joints and stuff like that?

Lori: It would be the shoulders. Overtime the shoulders hurt with all the transfers. Also knee pains are common with patients when they're standing up. I wouldn't say the lift hurts than knees unless they have prior pain. So, knees and shoulders would be the biggest. Injuries are so different with the elderly because they're older and everything in the is aging so they're hurting all around and they lose muscle mass and the arthritis, and everything starts adding up.

Michael: I think the only thing left we have to ask is the angle to lift them up at.

Lori: I don't know the official angle but I'm sure there's one online you could find that's the proper angle to lift someone up at and look at their hip to leg ratio. At least 45 degrees but then again, some patients couldn't get to that angle. It's not one fluent motion it's about leaning forward and then getting up but I'm sure you can look into that. Ideally, you'll want the lower lift.

Michael: Yeah, I didn't realize how small the walkers were.

Rochelle: Yeah, we can set the walker at whatever height to adjust to the user. It's going to be hard to get that upward motion that you're looking for so that's something to be aware of.

Lori: Another thing to think about when you're putting the motors in the front is to make sure they can still see as that may block their view as too where they are walking.

All the group members thank Rochelle, Lori and Hillary for their time and the meeting ends.

Hoyer lift:



Up lift:



Tie downs:

