LIFECARE
FURNITURE

SEATING IN AGED CARE

A report prepared for LifeCare Furniture Pty Ltd

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INTRODUCTION

This research was commissioned by LifeCare in order to provide a greater understanding of the context and needs of aged care furniture. This report provides the background to the issue of seating in aged care, with a focus in lounge chairs, and presents our findings from observations and interviews at four aged care facilities in 2015/16. A lounge chair is described as a chair that is used for extensive periods of time. It may be found in communal or private areas of aged care facilities and provides support for the head, neck and back (Christenson, 1990).

AIMS AND OBJECTIVES OF THE RESEARCH

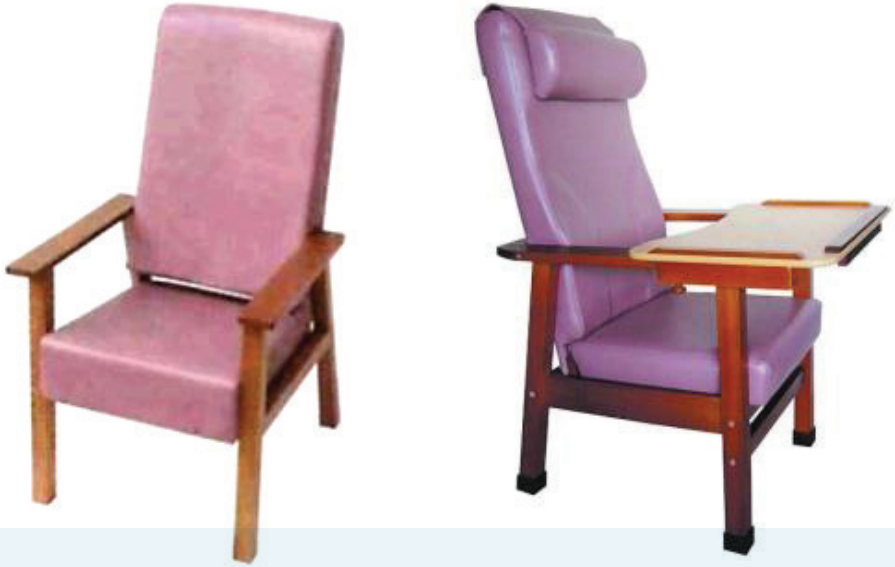
In order to best advise Lifecare on the evidence-based design of appropriate chairs for aged care environments, we devised the following aims and objectives:

Overarching aims

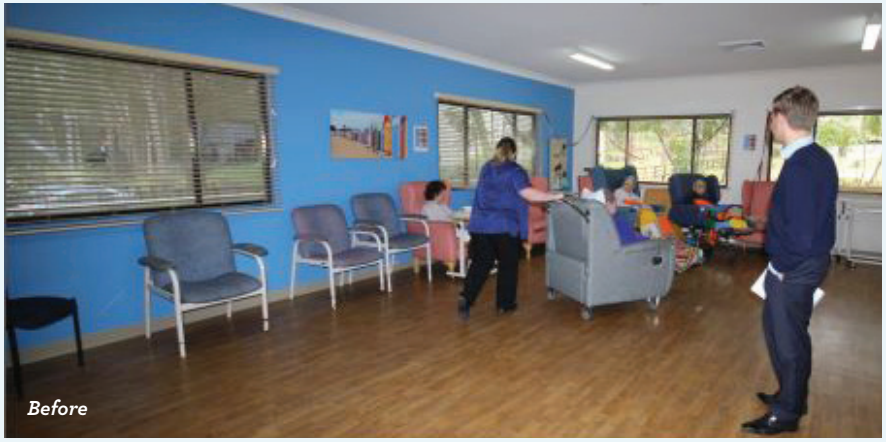
To gain a deeper understanding of the exact issues that residents and staff had with the chairs they use at the facilities.

To deliver a set of recommendations for the design of chairs for aged care facilities that are evidence-based

AGED CARE FURNITURE OF THE PAST



BEFORE AND AFTER REFURBISHMENT

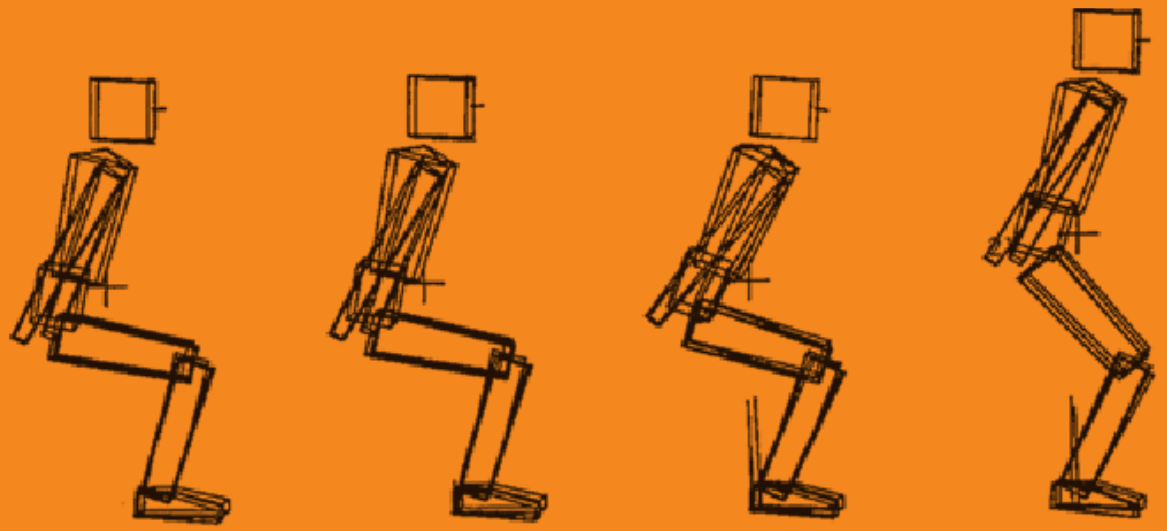

Before


After

CHAIR RISE STRATEGIES

The act of standing from a seated position is a physical task performed regularly throughout a day and is one of the most important measures of physical function *(Rodosky, Andriacchi, & Andersson, 1989)*. Often referred to as chair-rise, or sit-to-stand (STS) transfer, this ability is key to maintaining mobility and independence and has been identified as the most important factor for older people when choosing a chair *(Alexander, Koester, & Grunawalt, 1996; Dolecka, Ownsworth, & Kuys, 2015)*.

Biomechanically, rising from a chair is perhaps one of the toughest tasks, requiring a great amount of strength and motion from the knees and hips *(Hughes, Myers, & Schenkman, 1996)*. Rising from a chair involves moving from a static, seated position through an unstable transition phase, to a "quasi-static" (standing) position *(Hughes et al., 1996, p. 190)*. Successful transition requires significant motor control, momentum and coordination *(Scarborough, McGibbon, & Krebs, 2007)*.
A number of chair-rise strategies have been observed and classified; Momentum transfer (MT), stabilisation or exaggerated trunk flexion (ETF), and dominant vertical rise (DVR) *(Hughes et al., 1996; Hughes, Weiner, Schenkman, Long, & Studenski, 1994; Scarborough et al., 2007)*. Strategies differ in the amount of work required by the trunk, the knee and the hip. Some strategies require more strength, some more time, some are used in conjunction with others *(Dolecka et al., 2015; Hughes et al., 1996; Hughes et al., 1994; Scarborough et al., 2007)*.



1 2 3 4

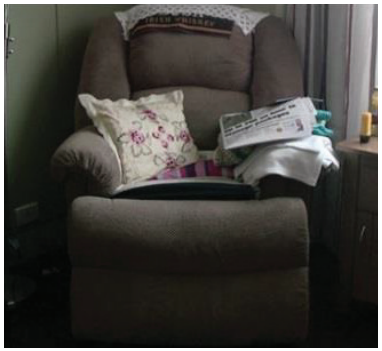
SEAT HEIGHT

However, older adults are not necessarily more comfortable using higher seats. Seats that are too high can compromise stability because a person's feet will be unable to reach the floor *(Alexander et al., 1996)*; this increases discomfort under thighs and will increase pressure behind the knee *(Holden et al., 1988)*, which creates a VT risk.

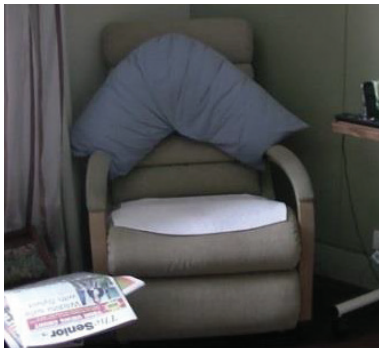
The current Australian Standard for fixed height chairs outlines a seat height range of 410 to 430mm, but says that up to 450mm would be appropriate *(Standards Australia/ Standards New Zealand, 2000)*.

Studies of seating for older people recommend an optimal height between 430 and 470mm *(Alexander et al., 1996; Holden & Fernie, 1989)*. The seat height of a lounge chair for older people recommended by Holden and Fernie (1989) is 470mm at the front.

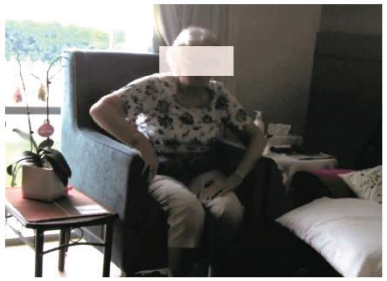
Familiar modified



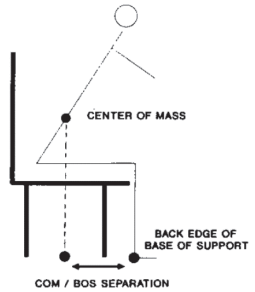
Recliner standard



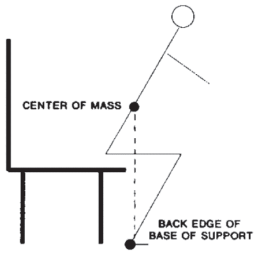
Recliner customised



Momentum Transfer Strategy



Stabilisation Strategy



“Do you have an opinion on the furniture that’s designed for aged care at the moment?”

“What it’s doing is making their job easier instead of providing them with an environment that best suits them to maintain their strength. Let’s boost them up, let’s have a chair that’s super high… It just needs to be things like changes in the density of cushions that may ultimately affect the comfort of the chair but ultimately it’s going to maintain their independence.”

PHYSIOTHERAPIST

SEAT SIZE (WIDTH AND DEPTH)

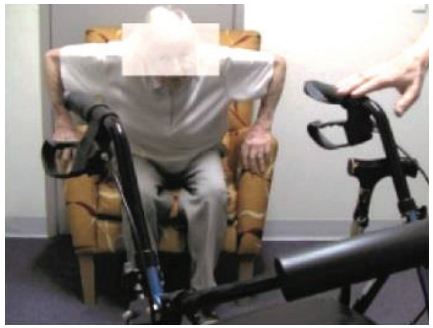
Seat depth has been identified as an important factor in seating comfort for older people *(Holden et al., 1988)*. Seats should be able to support the full length of the thighs without the sitter having to slouch or lean to support the back *(Disabled Living Foundation, 2005; Standards Australia/ Standards New Zealand, 2000)*. There should be space behind the knees for circulation, as many elderly clients need wide seats but because of short legs, need less depth and seat height.

Space underneath the seat

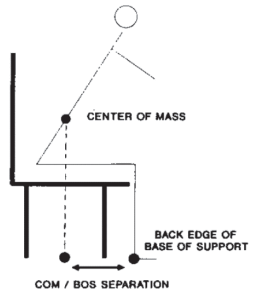
This space allows room for the person to place their feet under the chair, and under their centre of gravity, to assist them when rising from the chair. Due to decreased balance and strength, older people often require more room under the chair *(Christenson, 1990)*.
A set-back of at least 76mm under a seat is recommended *(Holden et al., 1988, p. 282)*.

Sitting down

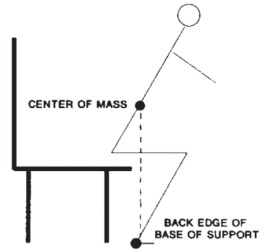
Standing up



Momentum Transfer Strategy



Stabilisation Strategy



TWO AND THREE SEATERS

It was noted in initial consultation with LifeCare that manufacturing couches was not considered a priority. This view was reinforced by one of the experts participants – and OT who said that she would not recommend them for an aged care environment due to the lack of two arm rests (one on each side) to help residents get up independently. However, both two and three seater options were available in the residential facilities observed.

Bradman sofa with console

TWO AND THREE SEATERS (CONT.)

Facility managers commented that they provided spaces for close socialisation:

"We get a lot of couples and friends, who'll be sitting one to one, or when family are visiting, its that closeness as well." STAFF 3

"...a two seater lounge chair with a tray in the middle so they could sit together" STAFF 6

The manager recognised the impact that a lack of two arms would have in STS transfers but referred to his residents' capabilities and independence,

"Obviously... they won't have the same support with the arms when they're trying to get up, however, I think the majority of our residents know their capability of what they can and can't do" STAFF 3

In the high care dementia environment, couches also provided an alternate sleeping option for residents who were having restless nights.

"...in the dementia unit we had a couch that they could lay down and sleep..." STAFF 6

When trying to stand from a chair without armrests residents would push on other features such as the table, seat back or the seat itself. One resident said having no armrest made her feel very insecure.

"I hate this, it's a real problem for me, I don't know what I'd do, I'd just panic, I don't like it. I'm looking for somewhere to push" RESIDENT 5

FABRIC

Fabric was inextricably linked to cleanliness. Residents noted that many of the communal chairs were dirty and would take time to choose their seats as a result. In their private spaces armrests were consistently covered with a cloth or towel to maintain the fabric.

"...they're not very nice, and they're very dirty. And they do get fleas, and they get ants... and you go back to your room and you always feel you're scratching... And you've got some patients here that they bring down, and sometimes they have accidents in them... they're always having accidents in them... no they're not very pleasant to have to come and sit in." **RESIDENT 17**

"I notice you've got a towel over it..." "Well that's just to keep it [clean]... I used to have a single bed sheet over it. The lady next door to me said 'I wish I'd done that because' she said, 'I wore holes my the arms of the chairs, the fabric chairs." **RESIDENT 10**

"As far as I'm concerned the most comfortable chairs for our age are high-set shallow seats... So many arm chairs have deep seats so you're right in the back. Where I'm personally more comfortable sitting upright in a chair with a shorter seat so that my knees are actually beyond the edge." **RESIDENT 3**

However, a couple of taller male residents, one measuring 190cm, were of the opposite view:

"The average chair is too small for me... I like, some of the things you've been talking about, they're good as far as I'm concerned, like having a deep seat" **RESIDENT 2**

"Yes, well, you've got longer legs. Our knees get to the end before our bums get to the back." **RESIDENT 3**

"...and all you have to do is smell it. And the ones that have material on them are all stained. They're never clean... and I don't want to sit on that."

RESIDENT 17

EXPERT AND CARER PERSPECTIVES ON CHAIR FEATURES

SEAT HEIGHT

"...even though some of them are too low... because they've got to make an effort, it strengthens them too."

STAFF 6

"We've got to make sure the chair is not too low for the staff to get them up to standing, but you don't want them too high for the resident to get in and out of them too." STAFF 6

"...this is our issue. It's really difficult to find a chair that's going meet all people's needs" OT

"Most of the chairs are pretty much the right height. You don't want anything too low to get out of" STAFF 5

"If you can vary the seat height that would be optimal... any chair that had variable height ability by changing the leg length would be great." PHYSIO

"Too low... especially lounge chairs... when you're sitting [in a dining chair] your bottom height and your knee height are pretty much on a straight plane. When you sit in a lounge chair, because the cushion is comfortable and collapses you go down below that position and so your hips get below your knees. That creates a change in mechanical advantage... needed to get you up" PHYSIO

EXPERT AND CARER PERSPECTIVES ON CHAIR FEATURES

SEAT DEPTH

Although seat depth was not mentioned as frequently by managers and nursing staff as it was by residents, it did feature in interviews with the Physio and OT, particularly in relation to poor and painful seating positions.

"So the depth of the seat is too long for my legs [feet do not touch the floor]... so what's going to naturally happen if I'm an older person who doesn't have good postural support, has weakened limbs... They're just going to gradually tuck under and slide out, looking for a base of support on their feet... the issue with this is not only a falls safety concern, but also of pressure, sheer forces, on their bottom." OT

"It very much depends on their mobilities, everyone's different, I mean there's different heights and weights and sizes obviously. But that seems to be the most appropriate chair to meet everyone's needs given that everyone's different." STAFF 5

"I would never choose the one chair to fit out the entire facility. I would choose a variety of chairs." OT

OT demonstrating the impact of a seat that is too deep.

DEVELOPMENT OF CHAIRS

Chair on right

Proposed chair which we have found to have a good seat to arm rest height, good back support, good seat depth, but is too low.

Chair on left

Has been altered to a 480mm seat height and now has more space underneath the seat for the resident to place their feet under the chair, and under their centre of gravity, to assist them when rising from the chair with excellent arm support height.

DEVELOPMENT OF CHAIRS (CONT.)

Chair used at Coral Sea Resort, Airlie Beach.

Remodelled chair for aged care

Proposed chair which needs remodelling for aged care

Ignitability testing letter of compliance

novitatech

Ian Reinhardt
Lifecare Furniture
15 Lathe Street,
Virginia, Qld. 4014

26th February 2014

Dear Ian,

Reference: testing the Lifecare Furniture Upholstery sample (seat cushion), our Laboratory reference is 492056.

This letter is to advise you that this Laboratory has finished testing your product to the following Standard method:
AS/NZS 3744.2:1998 Furniture – Assessment of the ignitability of upholstered furniture Part 2: Ignition source – Match-flame equivalent.

The official four (4) page report, dated 26th February 2014 and referencing job number 492056, identifies the sample, the test documents and the testing facility. All conformances with the AS/NZS 3744.2:1998 Standards are indicated in the report.

The Lifecare Furniture Upholstery sample (seat cushion) as represented by the test sample stated in the test report, demonstrates neither progressive smouldering nor flaming when tested in accordance with AS/NZS 3744.2:1998 Furniture – Assessment of the ignitability of upholstered furniture Part 2: Ignition source – Match-flame equivalent.

The above tests results relate only to the ignitability of the combination of materials under the particular test conditions; they are not intended as a means of assessing the full potential fire hazard of the materials in use.

Please do not hesitate to contact us if you have any enquiries or comments regarding the test.

Kind regards,

DN: CN = Wayne Wurfel, C = AU, O = NovitaTech, OU = Novitatech Test laboratory
Reason: I attest to the accuracy and integrity of this document

Wayne Wurfel
Senior Test Technician, Test Laboratory
Authorised signatory

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