

MINI REVIEW: NON-SLIP SOCKS AND FALLS PREVENTION

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Falls related injuries continue to be a major issue for older people with a third of all people over 65 years living in the community falling each year (1). There are a number of risk factors that contribute to falls and footwear has been identified as one that is modifiable (2). It has been reported that older people often wear inappropriate footwear both inside and outside the home and this contributes to falls mostly due to slipping (3, 4). For example one study reported the risk of falls increased by up to 10 fold in older people who were barefoot or wearing socks or stockings compared with those wearing athletic style shoes (3). Older people generally wear slippers indoors and these are often ill-fitting and can increase the risk of injurious falls (5). In a study of older people who had sustained a fall related hip fracture, it was found that 75% were wearing inappropriate footwear (6). Recommendations have therefore been made on suitable footwear for older people to reduce the risk of falls (7, 8). These include wearing shoes indoors and outdoors with a firm thinner slip resistant sole, low square heel and supporting collar(7).

Many older patients are admitted to hospital without appropriate footwear or have foot problems (such as oedema) that can restrict the type of footwear they can wear. Patients with cognitive impairment or confusion (a major fall risk factor in the hospital setting) may also mobilise without adequate footwear. Patients may also need to wear anti-embolism stockings (though many of these now have non slip soles). The lack of appropriate footwear in these situations has led to recommendations by a number of Local Health Districts to use non slip socks for these patients. This mini-review examines the evidence for the use of non-slip socks to prevent slip-related falls.

Two studies have investigated the properties of slip resistant sock in young people. The first, by Hübscher and colleagues, showed that non slip socks improved slip resistance during gait in 24 healthy young people when compared to conventional socks and slippers (9). The second, by Chari and colleagues, analysed the slip resistance of commercially available non-slip socks and one compression stocking by testing in a laboratory as well as testing healthy adults' ability to stand on a variable angle inclined platform topped with hospital grade vinyl (10). This study found that non slip socks showed poorer slip resistance than bare feet and were only marginally beneficial in slip resistance when compared to compression stockings on a dry surface (10).

Two other studies have included older people in their samples. The first study compared gait patterns in 21 young and 20 older healthy people in socks and barefoot conditions and found that older people in standard socks adopted a more cautious walking pattern with decreased walking speed and shortened stride compared with barefoot walking (11). The second, by Hatton and colleagues, studied 15 older people completing five trials of the Timed up and Go (TUG) test while barefoot, wearing standard socks and non-slip socks on a four-metre polished wooden walkway. The authors reported that non slip socks significantly improved gait performance compared to standard socks and that the older people adopted similar walking patterns as when walking barefoot; a finding suggesting non-slip socks may reduce the risk of slipping (12).

In summary, the above studies provide limited evidence that non-slip socks improve slip resistance on a variety of indoor surfaces and improve gait performance of older people when walking on slippery floors. Further studies are therefore required to confirm these findings and ensure they translate into a reduction in falls and falls injury. Related research findings indicate older people be screened for ill-fitting or inappropriate footwear and foot problems as part of a multifactorial falls risk assessment and recommendations made and information provided on safe footwear as well as referral to a podiatrist if indicated (8). Non slip socks could be used in this context, especially when appropriate footwear is not available.

References

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Resources

The Clinical Excellence Commission (CEC) NSW Falls Prevention Program has produced a flyer for patients and carers on Falls Prevention - Foot care and Safe Footwear,

Northern Sydney and Central Coast Local Health Districts have flyers on Non-slip socks and Choosing the right shoes for patients and carers.