



# Safety Study

## Slips, Trips, & Falls



# Contents

<b>Executive Summary</b>	<b>3</b>
<b>Key Information</b>	<b>5</b>
<b>Purpose</b>	<b>5</b>
<b>Definition</b>	<b>5</b>
<b>The Cause</b>	<b>6</b>
<b>Key Statistics</b>	<b>6</b>
<b>The Focus</b>	<b>7</b>
<b>The Outcome</b>	<b>7</b>
<b>Return on Investment</b>	<b>7</b>
<b>The Wearables</b>	<b>8</b>
<b>RMIT Safety Study</b>	<b>9</b>
<b>Damstra Capabilities</b>	<b>9</b>
<b>Product Documentation</b>	<b>9</b>
<b>Commercials</b>	<b>10</b>
Option	10
What's Included?	10
Cost	10
<b>Privacy</b>	<b>11</b>
<b>The Approach</b>	<b>12</b>
Dedicated Environment	12
How to Participate	12
Getting Started and Training	12
During the Safety Study	13
At the Completion of the Safety Study	13





## Executive Summary

Damstra (an ASX listed software entity) is conducting R&D on **Slips, Trips and Falls** across Australia - currently this is costing the country \$60 Billion<sup>1</sup> in compensation claims, which is likely to grow if there are no immediate interventions. **Slips, Trips and Falls** represent; the second biggest injury type<sup>2</sup> and increasing demand on individuals performing greater duties outside of the vehicle (at higher frequencies) are contributing to claim increases.<sup>3</sup>

The analysis of the data collected as part of the safety study is to be undertaken by RMIT, a leading and globally recognised University.

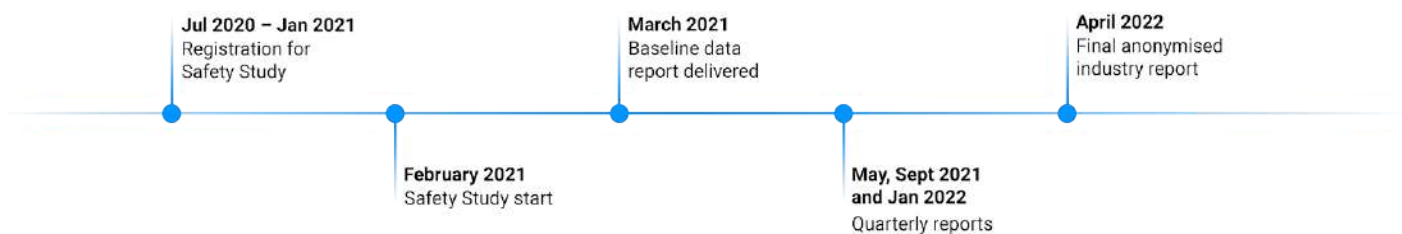
This study will provide an independent analysis of objective incident data relating to Slips, Trips and Falls incidents captured using Damstra's wearable devices during a 12 month period.

We are **carefully selecting 20,000 users from industry leaders**, to be involved in the safety study. We believe that this number of users allows enough data points to provide deep insights into the systemic failings, and help to understand how technology solutions can reduce this financial burden on the workers and, importantly, to you.

The study will utilise **developed fall detection algorithms**, deployed onto a wearable device to gather the human IoT data required for this research . This wearable will **collect data over a 12 month period** and over this time will inform emerging trends to further understand the root systemic factors reflecting how and why **Slips , Trips and Falls** are costing the economy billions of dollars each year.

Damstra will use already established data protocols and security based platforms to collect the data and all data used will be anonymised before any reporting will become publicly available to this user group, and before it is shared with RMIT University.

### Timeline



1 <https://www.safeworkaustralia.gov.au/statistics-and-research/statistics/cost-injury-and-illness/cost-injury-and-illness-statistics>

2 <https://www.safeworkaustralia.gov.au/statistics-and-research/statistics/cost-injury-and-illness/cost-injury-and-illness-type>

3 [https://www.monash.edu/\\_data/assets/pdf\\_file/0006/1457448/Driving-Health-Report-1.pdf](https://www.monash.edu/_data/assets/pdf_file/0006/1457448/Driving-Health-Report-1.pdf)



Full details of how the safety brief will be executed, committed participants, expectations and detailed benefits are included within this document. We are projecting **10%-15% of possible cost reductions**, and at these levels, Damstra would deem this a successful project.

When the study is completed, post **April 2021**, we would look to publish these findings wider and assist the industry in tackling major **Slips, Trips and Falls** head on. Participation in this study will endeavour to benefit all Australians with more workers going home safely to their friends, families and lives each day.



## Key Information

To date, there is no readily available or current data relating to non-driving activity injuries in the Asia Pacific, Americas and EMEA. The most recent research published by Monash University in October 2018, “Driving Health. Health service use following work-related injury and illness in truck drivers”<sup>4</sup>, clearly articulated the higher prevalence of work-related health and safety related incidents for drivers. As an example, **drivers are four times more likely to be injured at work than non-drivers**. Additionally, the report highlighted that **83% of injuries at work for drivers were not vehicle collision or accident related**.

To date, there is no research for the non-driving high-frequency activities that have resulted in correct categorisation of these types of injuries. Moreover, there is no supporting data for businesses to readily identify insights and to make actionable changes for future prevention.

## People

Researchers from RMIT University’s Work Health and Safety Research @RMIT Research Group conduct leading edge applied research with industry partners to analyse organisational work health and safety performance. The mission of RMIT Research Group is to collaborate in a program of industry focused research to improve the health and safety of workers. The RMIT researchers aim to significantly reduce the number of workers who are harmed in the course of their employment.

## Purpose

This safety brief has been created to review, monitor, and create awareness of safety whilst performing work duties, specifically activities for **Slips, Trips and Falls** and classification of the events.

## Definition

The Safe Work Australia website has defined **Slips, Trips and Falls** as the following;<sup>5</sup>

- **Slips** occur when your foot loses traction with the ground surface due to inappropriate footwear or walking on slippery floor surfaces that are highly polished, wet or greasy.
- **Trips** occur when you catch your foot on an object or surface. In most cases people trip on low obstacles that are hard to spot such as uneven edges in flooring, loose mats, open drawers, untidy tools or electrical cables.
- **Falls** can result from a slip or trip but many occur during falls from low heights such as steps, stairs and curbs, falling into a hole or a ditch or into water, falls from height.

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<sup>4</sup> <https://www.drivinghealth.net/findings>

<sup>5</sup> <https://www.safeworkaustralia.gov.au/slips-trips-falls#slips-trips-and-falls-a-definition>



## The Cause

The frequency of staff activities and actions required to be performed outside of the vehicle is becoming increasingly demanding, while the number of injuries and risk of injuries will continue to occur and increase.

Some of the key activities identified as high frequency:

- Getting in and out of a vehicle
- Loading and unloading of a vehicle
- Transit areas of distribution centre, loading bays and warehouses
- Pick up and delivery point
  - Limited to no visibility, unknown surfaces
  - Incorrect use of equipment - overloading of trolleys etc
  - Oversized freight, heavy items
  - Stairs, limited space
  - High risk surfaces - slippery, uneven, damaged
- Performing tasks around machinery and moving objects
- Performing tasks at heights
- Performing tasks within high vehicle traffic areas
- Working in adverse weather conditions
- Construction sites

## Key Statistics

One of the contributing factors of why the safety study is important, is the limited data available to understand how much of an impact the occurrence of **Slips, Trips and Falls** is making.

Over the 12 years between 2003–15, **Slips, Trips or Falls**<sup>6</sup>:

- Caused the death of **386** workers
- Led to **23%** of **serious claims**
- Were caused by environmental factors\* **56% of the time**

Worker compensation claims over an 18 years between 2000-2018, **Slips, Trips and Falls**<sup>7</sup>:

- Total number of **claims 175,410**
- Reported falls on the same level claims **110,700**

Furthermore, WHSC Singapore as a part of the Ministry of Manpower outlines that **Slips, Trips and Falls** (STFs) are the most common causes of injuries in workplaces <sup>8</sup>.

- From 2014 to 2018, STFs contributed to more than **25% of all workplace injuries** and have affected more than **3,000** employees every year.
- Besides sprains and strains, STFs can also cause more serious injuries such as fractures, head injuries and even fatalities.

<sup>6</sup> <https://www.safeworkaustralia.gov.au/slips-trips-falls#slips-trips-and-falls-a-definition>

<sup>7</sup> <https://www.safeworkaustralia.gov.au/collection/australian-workers-compensation-statistics>

<sup>8</sup> [https://www.wshc.sg/wps/portal/lut/p/a/1/04\\_Si9CPykssy0xPLMnMz0vMAfGzOJ9\\_E1MiByDDbzdPUIMDRyNfA08QsyNDYPNTIAKInErcA4zJk6\\_AQ7g\\_aEBIf7h-FD4IYBeAFcCxwks\\_Ki0nPwns3UijHvCRji3T9gKLUtNSi1CK90iKqcEZJSUGxlagBqkF5ebleen5-ek6gXnJ-rqoBni0Z-cUl-hGoKvULckMjDLJMc8p8HBUBf10x\\_A!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/?action=cmsPublicView&cmsId=C-2015111807001&tblId=C-2015111807002](https://www.wshc.sg/wps/portal/lut/p/a/1/04_Si9CPykssy0xPLMnMz0vMAfGzOJ9_E1MiByDDbzdPUIMDRyNfA08QsyNDYPNTIAKInErcA4zJk6_AQ7g_aEBIf7h-FD4IYBeAFcCxwks_Ki0nPwns3UijHvCRji3T9gKLUtNSi1CK90iKqcEZJSUGxlagBqkF5ebleen5-ek6gXnJ-rqoBni0Z-cUl-hGoKvULckMjDLJMc8p8HBUBf10x_A!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/?action=cmsPublicView&cmsId=C-2015111807001&tblId=C-2015111807002)



## The Focus

RMIT safety study will capture and report all event details, including capturing categorisation details to form a substantial data set for comprehensive causal analysis. This analysis will then provide actionable insights for organisations to improve safety outcomes for drivers, regardless of the industry in which they operate. Ultimately, this study will outline actions for organisations to determine key details, to support and assist businesses make informed decisions on how to reduce and/or prevent potential injuries from occurring.

## The Outcome

1. Develop a baseline of individual company participant injury data relating to non driving activities, so we can determine what the impact is prior to participating in the safety study.
2. Develop monthly individual company reports (12 reports for safety study) for all events.
3. A scientific report will be undertaken by researchers from RMIT University through the review and analysis of data, including findings on key stats, event types, locations, outcomes of events. This report will be submitted to a peer reviewed scientific journal for publication.
4. Present research paper to leading bodies to promote Damstra as a standardisation platform for RoI and harm minimisation.

## Return on Investment

Demonstrable return on investment is gained through establishing a quantitative and repeatable measurement framework and baseline data. Throughout the study all incidents and events will be captured and correctly classified so that corrective actions can be identified. In particular, real insights will be generated to improve safety around vehicles, maintain/improve workforce health and wellness, improve productivity and reduce claims and insurance premiums.

Tangible and Intangible improvements are expected but not restricted, to the following:

- Fewer incidents
- Measurable and reduced Lost Time Injury Frequency Rate (LTIFR)<sup>9</sup>
- Reduced Total Recordable Injury Frequency Rate (TRIFR)<sup>10</sup> to allow leaders to focus on people, their injury and lessons learnt
- Reduced costs and time for rehabilitation and return to work
- Reduced costs for insurance and associated claims
- Reduced unplanned leave including; sick/workcover
- Improved staff engagement
- Fatigue related incidents: Shift lengths measured against incident date/time
- Incident recording and tracking, particularly near misses, will increase and will capture more data for trend analysis and action
- Reduced workers compensation costs and premiums

<sup>9</sup> LTIFR is the number of lost time injuries occurring in a workplace per 1 million hours worked. This standard safety formula gives a picture of how safe a workplace is for its workers.

<sup>10</sup> TRIFR is the number of injuries (excluding fatalities) requiring medical treatment per million hours worked within an organisation.



Developed ROI model and framework will include:

- Cost vs. savings: fewer incidents and claims, reduced insurance premiums
- Efficiency vs. cost: working smarter, reduce operational and staff working at full capacity
- Cost of rehabilitation and ongoing support

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**If you reduced your workcover insurance premiums by 1% right now,  
what would the financial impact look like?**

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## The Wearables

The two watches compatible to be used for the safety study are a generic non branded Android watch and the premium Samsung Galaxy LTE watch.



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11 Samsung Galaxy LTE Watch

12 Omate Watch LTE Watch





## RMIT Safety Study

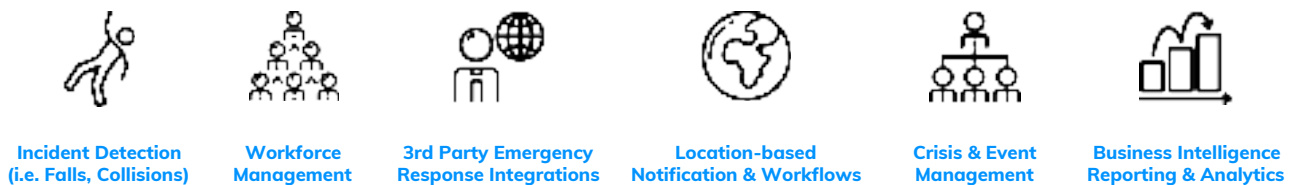
RMIT in partnership with Damstra will run the independent evidence based study which will be conducted for a period of 12 months, with a commencement date to be proposed for **February 2021**. The target is to achieve 20,000 users using wearables and the application during the safety study period, so we can generate and capture a sufficient level of data to deliver the required outcomes of the safety brief.

Users will be welcomed to commence using the Damstra Solo application as soon as they sign up and complete training, if they would like to get started prior to the official safety study launch.

After completing the safety study, we will generate the following for all participants;

- 1) Comprehensive reporting against key findings of the study including:
  - a) Accurate event date of when and where each event occurred
  - b) Categorisation of the type of event/incident
  - c) Detailed analysis of all data, including statistical distribution models
  - d) Prioritised recommendations for participants to implement in their organisations plus a full list of recommendations from all organisations (anonymised)
- 2) A comprehensive analysis with industry and academic standards at a macro level (across all participants) and at a business level by RMIT.
- 3) Marketing, publication and distribution of the model, highlighting participant contributions.

## Damstra Capabilities



## Product Documentation

Damstra Solo - Website: <https://damstratechnology.com/products/solo>



## Privacy

RMIT safety study will take privacy very seriously, Damstra Solo is hosted on MS Azure Australia (East) with full encryption at rest.

Damstra incorporates the standards required for compliance with EU General Data Protection Regulation (GDPR), Australia's Commonwealth Privacy Act 2018, New Zealand's Privacy Act 1993 and Singapore's Personal Data Protection Act 2012 (PDPA).

In addition to policy, process and technical layers to protect the security and privacy of data, in conjunction with clients, Damstra has also implemented solutions to further de-identify individuals without compromising the solution or outcomes. These methods effectively de-link the personal information from the worker by using single user IDs to manage business operations, then reconciling against an alternate register in the case of issues.

General data including GPS location and biometric monitoring can be configured locally to track whatever information the organisation and unions have agreed. Damstra Solo has a number of graduated options and experience in working with highly unionised workforces to achieve an appropriate balance between safety and privacy. As an example, GPS location information can be disabled as a default and is only activated in the case of duress (eg. a collision, a fall or a user initiated duress alert).

Data is only available to designated staff within or the administrator of the system and can be distinguished (in app and platform) by role, team or business hierarchy.

Some of the data we collect will be sent to RMIT University for trend analysis. This data includes the date and time of the incident, the occupation and organisation of the wearer, the injury type and the activity being performed at the time of the incident, plus whether the incident resulted in an injury. All data will be de-identified and RMIT University will not be able to link the data to any person. The data given to RMIT University will be stored in university password protected computer files with access restricted only to the researchers. The data will be stored for five years, after which it will be destroyed.



## The Approach

Damstra will engage with our channel partners, leading industry bodies and organisation networks to engage companies/businesses to participate in the safety study. Damstra has already commenced direct engagement with a large number of companies and businesses across many industry sectors:

- Transport and Logistics - Heavy and light vehicles
- Construction
- Mining
- Rail
- Utilities
- Security
- Terminals and Ports
- Police and Defence

There is no restriction on user types or industry verticals, as the safety study welcomes all types of participants.

Damstra will be running a series of webinar sessions to promote and address any common questions or concerns raised, to ensure we can provide insight into the safety study and also any important information for preparing for the safety study.

### Dedicated Environment

Companies/businesses will be directed to a private environment. where they can access to review all the details for the research, data, and safety study. You and your team will have access to all the benefits, outcomes and Rol by sharing your anonymised business data for the research..

Additionally, the environment will contain content with links to product information, training material, guides, FAQs, processes (including sign up), key dates, next steps and supporting details to make sure all participants and participant organisations can source what they need.

### How to Participate

1. Register your interest at <https://www.damstratechnology.com/products/solo-register>
2. Damstra team will be in contact to answer any further questions and sign up process

### Getting Started and Training

Prior to the official safety study period commencing, users will be allocated to a series of scheduled online training sessions, which will run on a weekly basis and/or different times of day to ensure we remain flexible to everyone requiring training. Sessions will also be recorded to allow individuals to refresh themselves at any time.



### **During RMIT Safety Study**

Throughout RMIT safety study period, regular communications and updates will be shared with participants and participant organisations to drive engagement and promote feedback to guide the safety study. Damstra will take an agile approach to the study workings, ensuring maximum benefit is derived through adjusting the approach, process or reporting as appropriate.

Along with the monthly reporting being presented, Damstra will schedule regular check-in calls/meetings with companies/businesses to ensure we stay connected with all user feedback and address any challenges at the correct level. These meetings will include a discussion on the previous month period report.

### **At the Completion of RMIT Safety Study**

All businesses that have participated in RMIT research/safety study will be given the opportunity to participate and be involved in workshops or events created from RMIT safety study, including direct access to RMIT safety study data to help generate positive outcomes for each individual business.

Following the conclusion of RMIT safety study, supporting professional services and industry bodies will be available to support any future plans or potential programs each business may wish to incorporate.

Participating organisations will have the opportunity to continue use of the application for the protection of employees post study conclusion

Any questions, please feel free to contact us to discuss:

<b>Australia</b>	<b>New Zealand</b>	<b>US</b>	<b>UK</b>
1300 722 801	0800 722 801	888 837 7688	020 3995 2399

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