# Usability and feasibility of a novel eHealth application for self-reports of sports-related injuries and illnesses in Paralympic sport

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# Paralympic sport

- Paralympic athletes are
  - elite sports persons
  - a heterogeneous group with preexisting medical issues
- Increasing number of studies indicate that sports-related injuries and illnesses in Paralympic sports (SRIIPS) are a concern


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# Athlete monitoring in Paralympic sport

- To move towards prevention, comprehensive epidemiological research is required
- Few studies have:
  - longitudinally assessed the epidemiology of SRIIPS
  - assessed sports-related and impairment related risk factors


*Fagher, K & Lexell, J. Sports-related injuries in athletes with disabilities. Scand J Med Sci Sports. 2014*

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# Initiation of the SRIIPS-study

- The Sports-Related Injuries and Illnesses in Paralympics Sport Study (SRIIPSS)
- One year prospective longitudinal study based on self-reports
- Estimate the annual incidence of sports-related injuries and illnesses among Swedish Paralympic athletes
- Explore risk factors and mechanisms based on athlete exposure

*Fagher, K. et al. The Sports-Related Injuries and Illnesses in Paralympic Sport Study (SRIIPSS): A study protocol for a prospective longitudinal study. BMC Sports Sci Med Rehabil. 2016*

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# The SRIIPS-study protocol

- Self-reports established method to monitor athletes' health
- Paralympic athletes' specific needs have to be accommodated
- Develop a method targeted to Paralympic athletes
- Qualitative study of Paralympic athletes revealed that pain, overuse and impairment-related injuries is common
- Argument-based method to structure a study-protocol for longitudinal collection of eHealth-based data

*Fagher, K. et al. The Sports-Related Injuries and Illnesses in Paralympic Sport Study (SRIIPSS): A study protocol for a prospective longitudinal study. BMC Sports Sci Med Rehabil. 2016*

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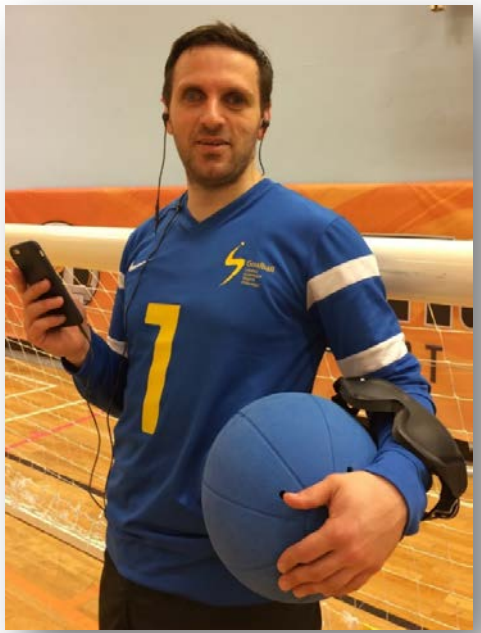
# Aim

- To evaluate the monitoring feasibility and system usability of a novel eHealth application for longitudinal epidemiological research on self-reported SRIIPS



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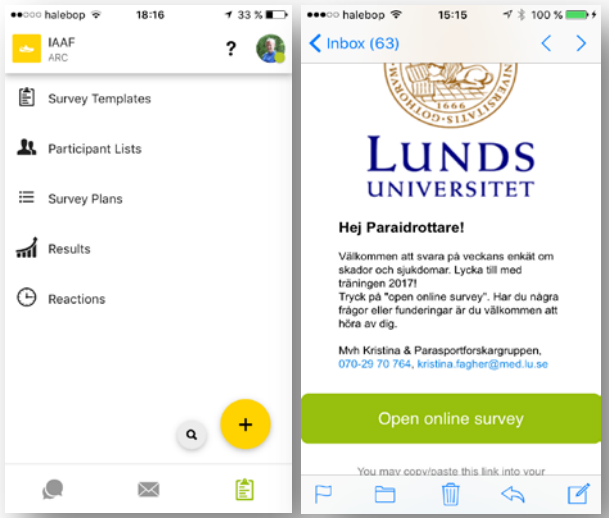
# Development of the eHealth application

- Developed based on existing research and Paralympic athletes' own perceptions of experiences of sports-related injuries
- Team communication research
- Adapted to persons with visual, intellectual and physical impairments
- Specific surveys, emails and text messages




*Fagher, K. et al. Paralympic athletes´perceptions of their experiences of sports-related injuries, risk factors and preventive possibilities. Eur J Sport Sci. 2016*

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# Design

- Design
  - Prospective cohort pilot study (four weeks) with a post-study user evaluation of feasibility and usability
- Setting
  - Twenty-eight Swedish Paralympic athletes with vision (n=11), physical (n=15) and intellectual impairments (n=2) representing 11 sports
- Assessment
  - Self-reported SRIIPS, pain, anxiety, generally well-being, sleep, training load, monitoring feasibility, and system usability
- Outcome Measurements
  - Feasibility and usability indicators, SRIIPS

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# Evaluation of feasibility and usability

| Theme | Code | Meaning unit |
|---|---|---|
| Individual sports person | Paralympic athletes | Monitoring not fully adapted to Paralympic sport<br>Injuries may occur because of the impairment |
| Task | Visually impaired athletes | Not straightforward to use a screen reader |
| E-diary system design | Complex incidents | Insufficient options for description of multifactorial incidents |
| Monitoring | Sustainability | Easy to understand and follow the weekly e-diary<br>Surveillance of this kind is important |

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# Results – self-reports

- 95% response rate, 1 dropout
- 15 new injuries
  (1.8 /100 hours of athlete exposure)
- 14 new illnesses
  (1.7 /100 hours of athlete exposure)
- 80% of injuries related to overuse
- Impairment involved in the cause in 20% of the incidents
- Common with anxiety, pain and use analgesics

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# Discussion

- Survey items formulated for use among abled-bodied athletes adapted to Paralympic athletes
- Injury and illness definitions explained in more detail to suit Paralympic athletes
- eHealth application adjusted to visually impaired athletes
- Important to include illnesses and overuse-related health incidents

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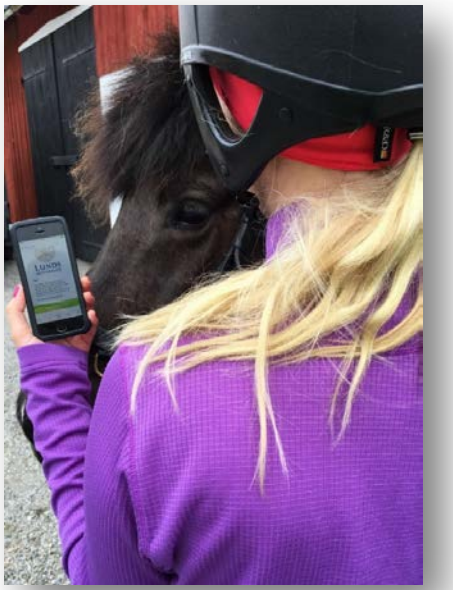
# Conclusion

- eHealth-based monitoring of Paralympic athletes:
  - Is feasible and usable
  - Can be used to longitudinally monitor athletes' health
  - Critical factors mostly related to the impairment should be highlighted before application in research programs



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# Ongoing research

- Prospective longitudinal study (one year) initiated
- 107 athletes included
- 40 weeks of monitoring
- Estimated to finish early 2018
- 70% weekly response rate
- 144 injuries
- 166 illnesses
- …and more to come, → stay tuned Vista 2019

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# Thanks!


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