

**MEASURING AND BENCHMARKING
CLINICAL PERFORMANCE:
A STUDY AMONG INTERNATIONAL
REFERENCE CENTERS.**



**INSTITUT
GUTTMANN**

HOSPITAL DE NEUROREHABILITACIÓ
Institut Universitari adscrit a la **UB**

SUMMARY

- SPINAL CORD INJURY
 - Guttman vs EMSCI (Europe)
 - Guttman vs NSCISC (USA)
- TRAUMATIC BRAIN INJURY
 - Guttman vs TBIMS (USA)



European Multicenter Study about Spinal Cord Injury



Initiator and Leading Centre

- Uniklinik Balgrist, Zentrum für Paraplegie, Zürich (Switzerland)

Founding Members

- Klinik für Paraplegiologie, Universitätsklinikum Heidelberg, Heidelberg (DE)
- Klinikum Bayreuth, Bayreuth (Germany)
- UMC St. Radboud, Nijmegen (The Netherlands)

Active Members

- RKU - Universitäts- und Rehabilitationskliniken Ulm, Ulm (Germany)
- BG Kliniken Bergmannstrost Halle, Halle (Germany)
- Institut Guttmann, Barcelona (Spain)
- SRH Klinikum Karlsbad-Langensteinbach, Karlsbad (Germany)
- BG Unfallklinik Murnau, Murnau (Germany)
- Werner-Wicker-Klinik, Bad Wildungen (Germany)
- Motol Hospital, Prague (Czech Republic)
- Orthopädische Klinik Hessisch Lichtenau, Hessisch-Lichtenau (Germany)
- Hospital Nacional de Paraplégicos, Toledo (Spain)
- Schweizer Paraplegiker-Zentrum, Nottwil (Switzerland)
- The Queen Elizabeth National Spinal Injury Unit, Glasgow (Scotland)
- Ospedale Fondazione Santa Lucia, Rome (Italy)

Passive Members

- BG Universitätsklinikum Bergmannsheil, Bochum (Germany)
- Clinique romande de réadaptation, Sion (Switzerland)
- BG Unfallklinik Tübingen, Tübingen (Germany)
- BG Unfallklinik Frankfurt am Main, Frankfurt a.M. (Germany)
- BG Unfallklinik Hamburg, Hamburg (Germany)
- Hôpital Raymond-Poincaré, Garches/Paris (France) (Founding Member)

Associated Members

- Charité, Department of Experimental Neurology, Berlin (Germany)
- ICORD (International Collaboration On Repair Discoveries), Vancouver (Kanada)

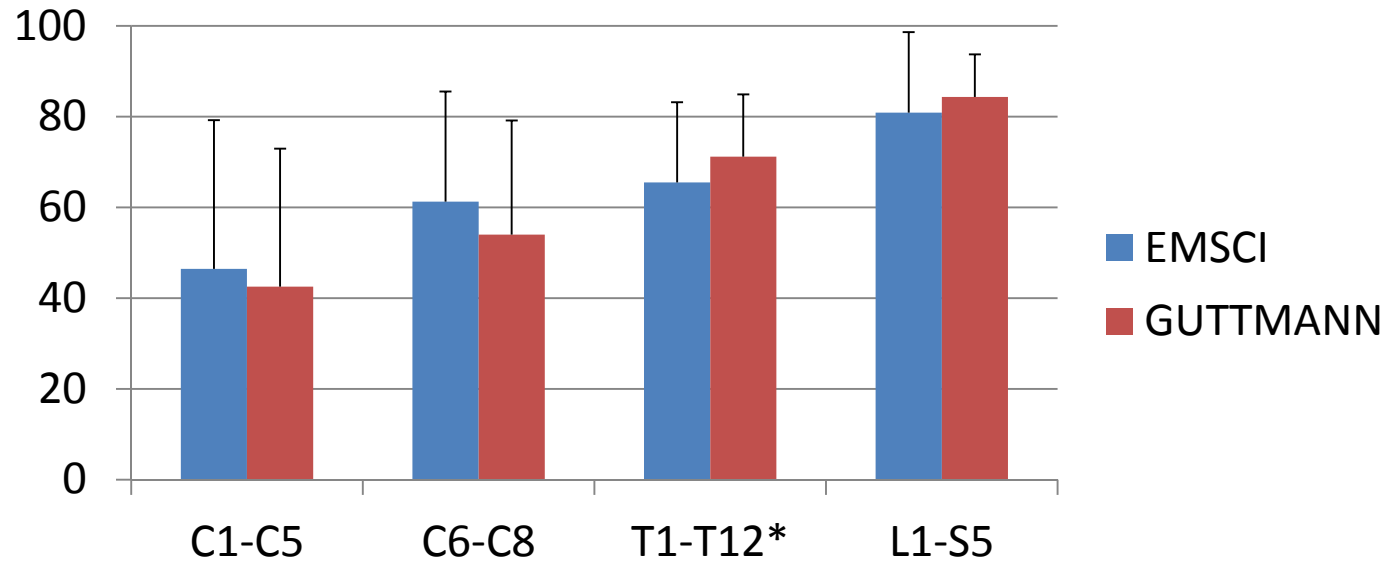
Collaboration

- Austrian Spinal Cord Injury Study, Salzburg (Austria)

Candidates

- Indian Spinal Injury Center, New Delhi (India)
- Klinik Bavaria, Kreischa (Germany)

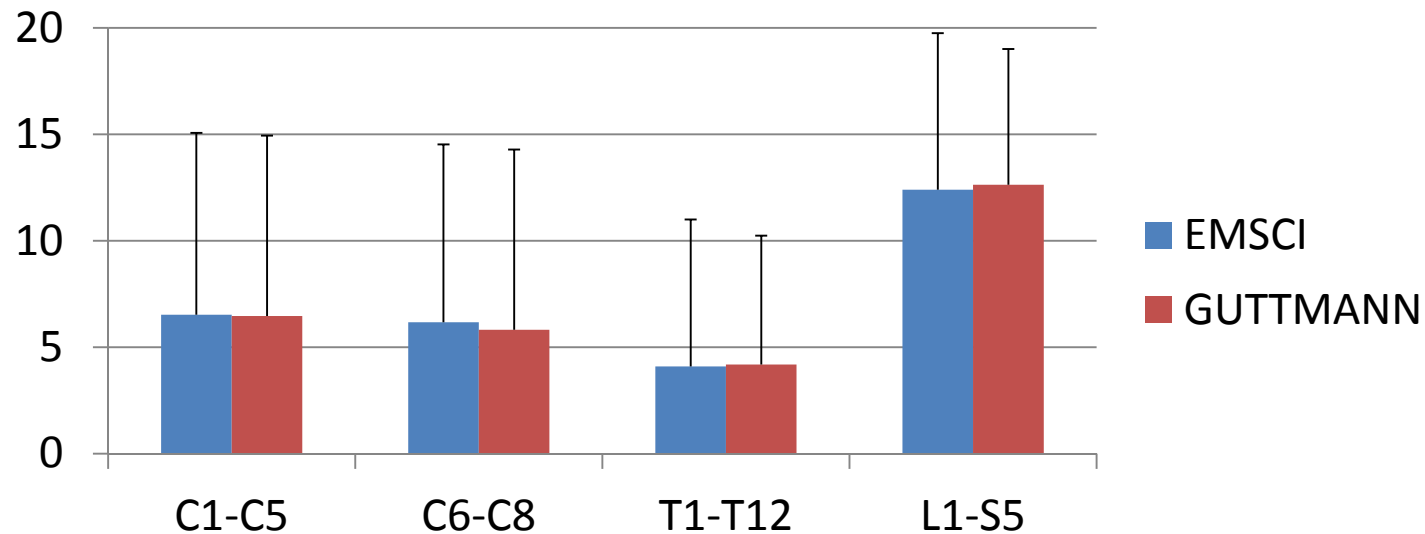
Spinal Cord Independence Measure (SCIM)



There are no statistical differences in 6 months SCIM means between Guttman and EMSCI group. The exception is for T1-T12 group, where the SCIM mean is higher at Guttman (t-Student Test, $p=0.02$). The figure shows the means and standard deviations.

n-Guttman =131, n-EMSCI=1.529

Walking Index for Spinal Cord Injury (WISCI)

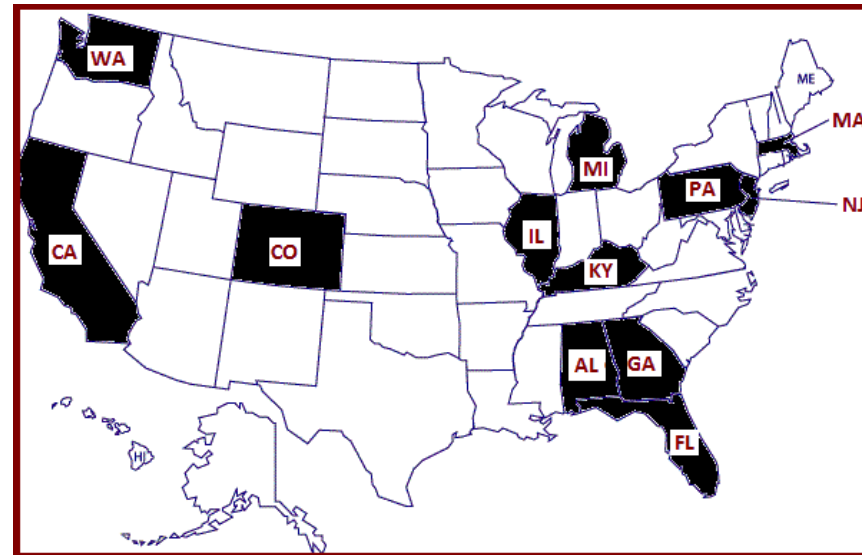


There are no statistical differences in 6 months WISCI means between Guttman and EMSCI group (t-Student Test). The figure shows the means and standard deviations.

n-Guttman =131, n-EMSCI=1.577

The functional results for Guttman patients are comparable with the results of the best Rehabilitation Hospitals in Europe (EMSCI group).

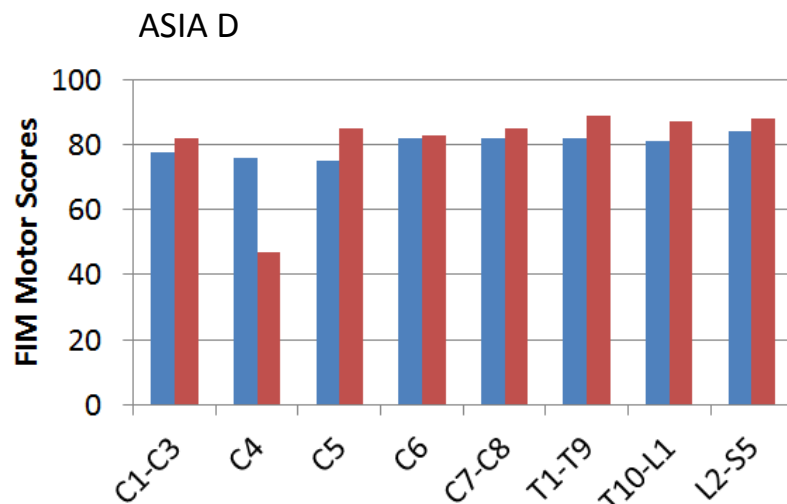
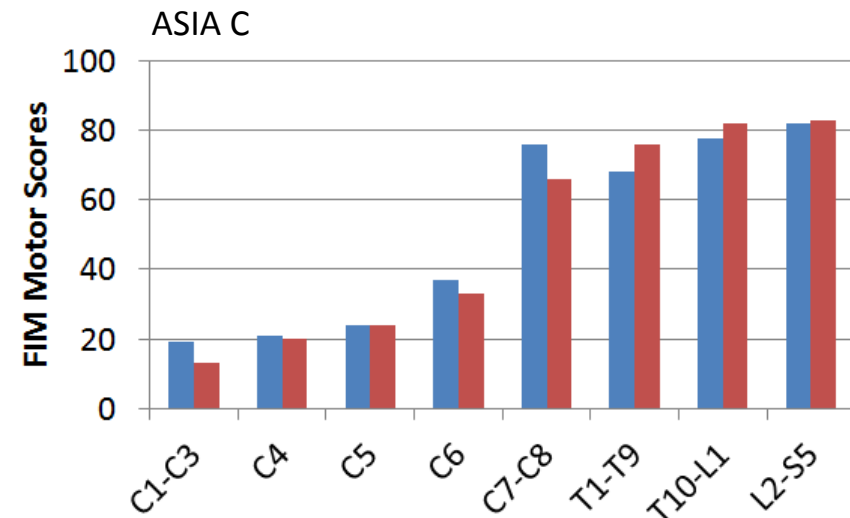
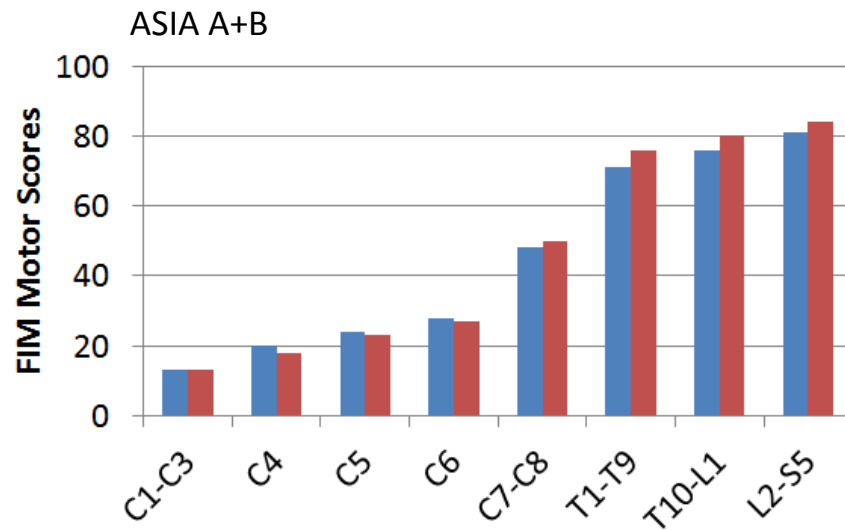
NSCISC National Spinal Cord Injury Statistical Center



Funded by:

- National Institute on Disability and Rehabilitation Research (NIDRR)
- Office of Special Education and Rehabilitative Services (OSERS)
- U.S. Department of Education, Washington, DC

Functional Independence Measure (FIM)



■ Guttman
■ NSCISC

The medians of FIM Motor Scores, for each ASIA and injury level, are similar both Institut Guttmann and NSCISC.

National Database: 2014 Profile of People within the Traumatic Brain Injury Model Systems

Presently there are 16 TBI Model System Centers and 3 TBI Model System Longitudinal Follow-up Centers* sponsored by the National Institute on Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, U.S. Department of Education:

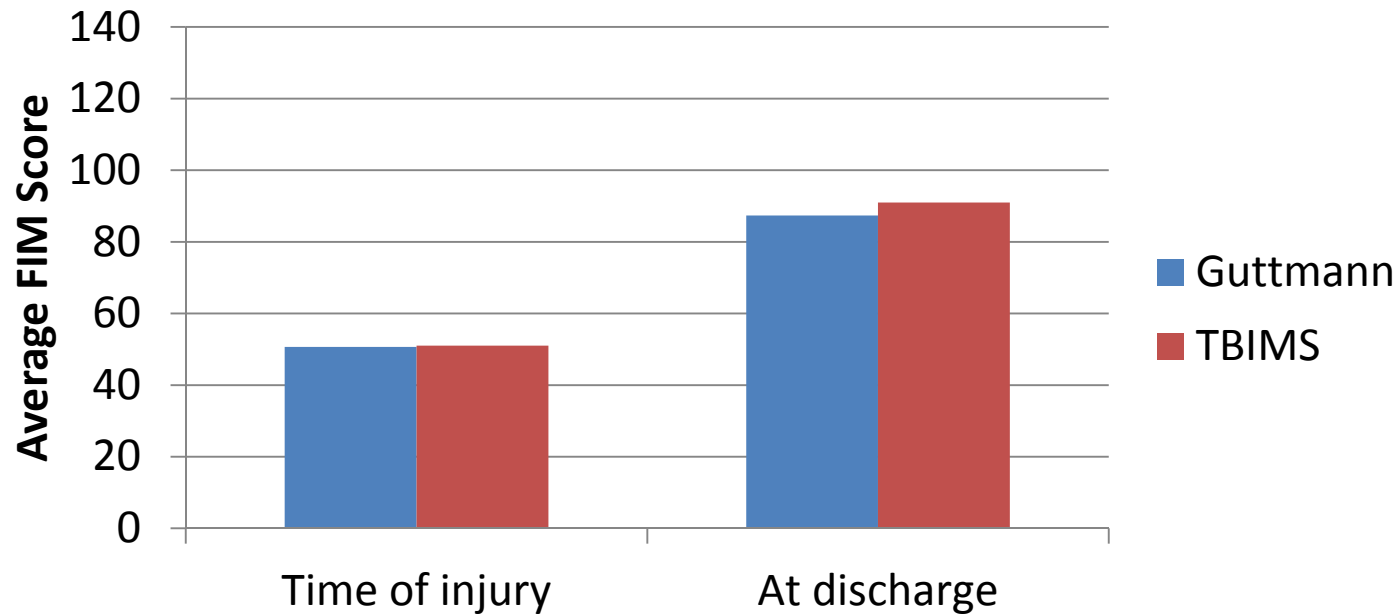
- University of Alabama at Birmingham Traumatic Brain Injury Care System, Birmingham, AL.
- *Northern California TBI Model System, San Jose, CA.
- Rocky Mountain Regional Brain Injury System, Englewood, CO.
- South Florida TBI Model Systems, Miami FL.
- Indiana University / Rehabilitation Hospital of Indiana, Indianapolis, IN
- Spaulding-Harvard Traumatic Brain Injury Model System, Boston, MA.
- *Southeastern Michigan Traumatic Brain Injury System, Detroit, MI.
- Mayo Clinic Traumatic Brain Injury Model System, Rochester, MN.
- *Carolinas Rehabilitation/Carolinas HealthCare System, Charlotte, NC.

- Northern New Jersey Traumatic Brain Injury System, West Orange, NJ.
- New York Traumatic Brain Injury Model System, New York, NY.
- Rusk Rehabilitation TBIMS at NYU, New York, NY.
- The Ohio Regional TBI Model System, Columbus, OH.
- Moss TBI Model System, Elkins Park, PA.
- University of Pittsburgh Medical Center Traumatic Brain Injury Model System, Pittsburgh, PA.
- North Texas Traumatic Brain Injury Model System, Dallas, TX.
- The Institute for Rehabilitation and Research, Houston, TX.
- The Virginia Commonwealth TBI Model System, Richmond, VA.
- University of Washington Traumatic Brain Injury Model System, Seattle, WA.

The mean age at Institut Guttmann is 43.24 years and at TBIMS is 40.77 years.

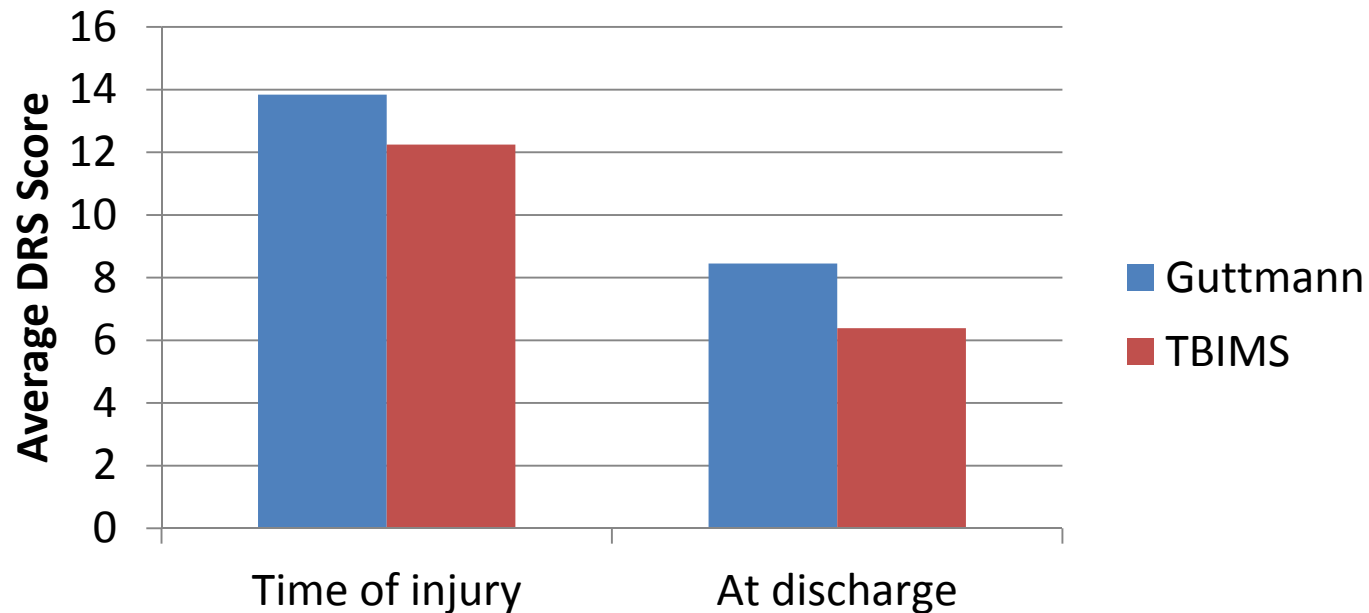
Gender distribution is very similar. Women represents the 24% at Guttmann and the 26% at TBIMS.

Functional Independence Measure (FIM)



FIM at Guttman improves significantly (Paired t-Student Test, $p < 0.001$) between admission and discharge, in the same way as TBIMS.

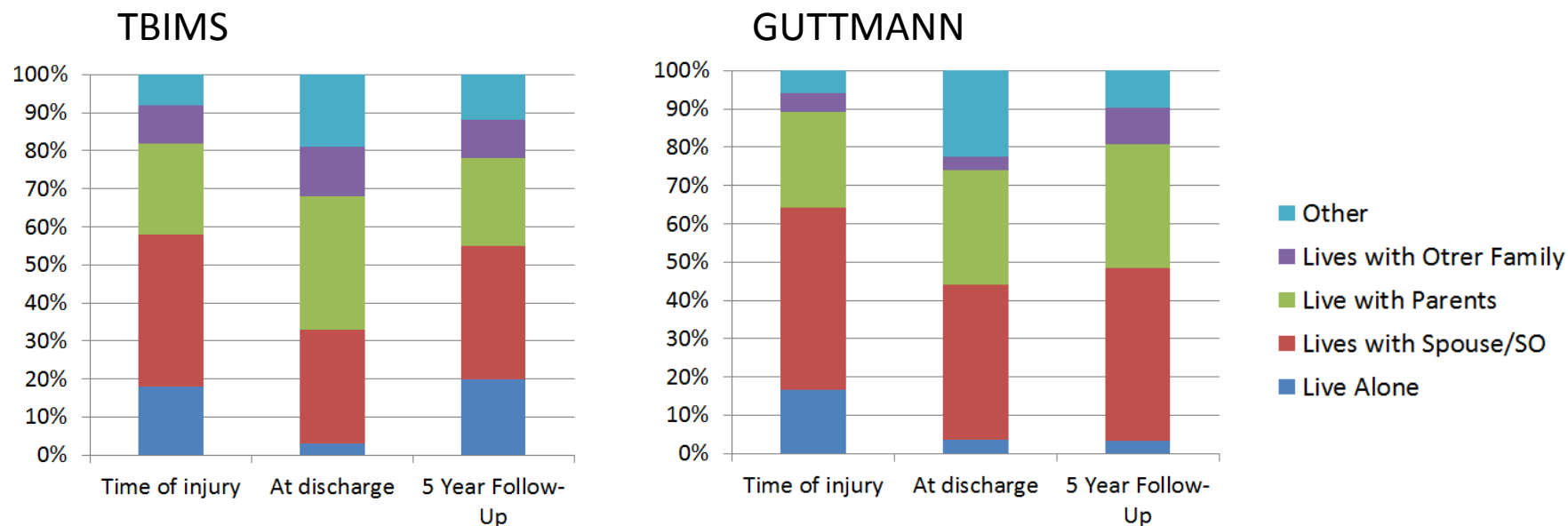
Disability Rating Scale (DRS)



The disability of the Guttman patients is higher than TBIMS patients, nevertheless the improvement between groups is similar.

DRS at Guttman improves significantly (Paired t-Student Test, $p < 0.001$) between admission and discharge.

Living Situation



At admission, discharge, and follow-up, our results are absolutely comparable to TBIMS. Living situation distributions are similar.



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