DR THOMAS JAMES GIBSON CPEng

RESUME, WITH SELECTED PUBLICATIONS

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Human Impact Engineering
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Tom Gibson is the Principal Engineer and founding Managing Director of Human Impact Engineering (HIE) a company specialising in the biomechanics of impact injury. Tom's international reputation, based on his research outcomes, publications and practical solutions, is the result of thirty years experience in industry, academia and consulting. Tom's qualifications in automotive crash injury causation include a Masters degree in Automotive Engineering from Cranfield University in the UK and a PhD focused on whiplash associated disorders from the University of NSW, Australia. After working for many years as Vice President of Biokinetics & Associates, Canada's foremost authority on the assessment of impact injury, Tom returned to Australia in 1996 to establish Human Impact Engineering. HIE focuses on the area of impact injury prevention, motor vehicle crash investigation, and the design and testing of protective systems.

Current activities

Tom's research and teaching interests, initiated in the automotive industry in the areas of crash injury, vehicle design, and vehicle noise and exhaust emissions, and expanded to other areas with his research expertise in head and neck injury. Tom is recognised for his unique combination of scientific knowledge and practical application of theory to road safety, motorcycle safety, helmet design and chest protection. His contribution to the automotive, equestrian, defence and sporting industries has led to an increasing call for his expertise on international research consortia and as an expert witness.

Most recent and active research projects include:

- The Improved Side Impact Protection (ISIP) and Farside projects on the development of countermeasures for injury in side impact crashes. He was responsible for the injury criteria for use with dummies in the design of safety systems for protection against both near and far side impact. These two projects are in association with the George Washington University, WMC, Autoliv (Sweden), GM Holden, Ford (US), Monash University Accident Research Centre (MUARC), the Australian Research Council (ARC) and DOTARS. Total research funds of $10m over seven years.

- The Far-side impact work has been extended by the same consortium with the addition of Hyundai Motor Corporation and the WorldSID Consortium to encompass countermeasures for occupant to occupant impacts and the use of the WorldSID test dummy. Total research funds of $500k over three years.

- An investigation of motor vehicle crashes with chronic pain outcomes to model soft tissue neck injury mechanisms and injury criteria. Project in association with the University of NSW, the James Hunter Medical Centre Newcastle, Autoliv and Folksam, Sweden and the Federal Office of Road Safety. Total research funds, $400k over three years.

- The development of guidelines for the increased use of virtual testing at GM Holden. Total research funds, $100k over 1 year.

- Separate projects evaluating helmet effectiveness for the Australian Harness Racing Council, the Australian Racing Board and the Australian Transport Safety Bureau. Total research funds, 150k over three years.

- An investigation of sporting injury and the effectiveness of current safety equipment including helmets for Harness Racing Australia and the Australian Racing Board. Total research funds, 300k over three years.

- The development of a test methodology to assess the protective capabilities of sports mouth guards. This project is in association with the Myofunctional Research Institute and the Queensland University of Technology. Total research funds, $300k over three years.

- Assess the role of motorcycle helmets in protecting against basilar skull fracture in motorcycle accidents. This project examined injury mechanisms and advise on current helmet standards, was in association with the Centre for Automotive Safety Research (CASR) of the University of Adelaide and the Australian Transport Safety Bureau (ATSB). Total research funds, $100k over one years.

Tom is currently co-supervising three PhD students in the areas of motor vehicle crash injury and sports injury biomechanics in association with the University of NSW, Monash University and the Queensland University of Technology.

Background

Tom earned national recognition for implementing significant changes to motor vehicle crash injury analysis capabilities in Australia, including establishing the first HIII dummy support capabilities and the use of the HII in evaluating advanced restraint systems including airbags. of a barrier test facility for the Roads and Traffic Authority of NSW. In addition he led Australia's first multi-disciplinary crash investigation team including neuropathology, medical and engineering personnel and was an early developer of the use of mathematical simulation of the crash victim (MADYMO and ATB Model) for the investigation of injury causation in vehicle crashes.

Tom is an internationally recognised researcher in the area of motor vehicle safety and injury biomechanics and has an established and prestigious network developed over many years living in the UK and Canada. While working as principal engineer with Biokinetics and Associates in Canada Tom led the development of the current motorcycle test dummy (MATD) now referenced by the International Standards Organization. Tom was the principal consultant to Transport Canada in the establishment of full HIII dummy crash test capabilities to establish crash protection standards for car occupants. This extended into work on the advanced frontal crash test dummy enhancements, which were later implemented in the THOR dummy. He also developed the Canadian wheel chair vehicle restraint test standard, which later became the basis for the ISO standard.

In Australia and internationally, he has advised government departments, standards committees, vehicle and restraint system manufacturers and sporting entities on impact injury causation and amelioration. This work has included the implementation of organization wide change by the implementation of evidence based risk management processes in such bodies as the Confederation of Australian Motor Sport, the Australian Racing Board and Harness Racing Australia.

Tom Gibson's established reputation, knowledge and expertise has resulted in over three hundred requests for expert witness reports in the areas of motor vehicle crash investigation and the causation of injury both in Australia and North America. He is frequently called upon by the NSW and Victorian Police and several major insurance companies including Allianz and NRMA.

Tom has had more than 50 peer reviewed papers published, including in Int. J. of Vehicle Design, Journal of Musculoskeletal Pain, Journal of Neurotrauma and the Medical Journal of Australia. He has written more than 60 major reports, contributed chapters to 6 books and written 8 courses. Further, he has prepared over 350 litigation cases for courts both in Australia and internationally. This brief resume includes a select listing of publications. A full CV listing all publications can be downloaded from http://www.humanimpacteng.com

ACADEMIC QUALIFICATIONS

2006 **Doctor of Philosophy (Biomedical Engineering)**
Thesis: Development and Validation of a C5/C6 Motion Segment Model
Graduate School of Biomedical Engineering, UNSW, Australia

1990 **Graduate Management Qualification**
Australian Graduate School of Management, UNSW, Australia
(Financial Management, Organisational Behaviour, Total Quality Management, and Marketing)

1980 **Course work for Master of Science (Acoustics)**, School of the Built Environment, UNSW.
(Mechanical Noise Sources, Acoustics of Speech and Music, The Ear and Hearing, Acoustic Theory, Acoustic Measuring Systems, Construction Contracts and Documentation, Hearing Conservation, Community Noise, Electro Acoustics, Acoustic Laboratory, and Advanced Physical Acoustics).

1978 **Master of Science (Automotive)**
School of Automotive Studies, Cranfield University, UK.
(Awarded Prize for Best Student)

1974 **Teaching Certificate**
Kuringai CAE, now the University of Technology Sydney Australia. Accredited to teach Mathematics and Engineering Science in NSW Secondary Schools.

1972 **Bachelor of Engineering (Mechanical)**
School of Mechanical and Industrial Engineering, UNSW, Australia

EMPLOYMENT HISTORY

Since 1996 **Managing Director and Principal Engineer**
Human Impact Engineering
Biomechanical Engineering Consultants, Sydney, Australia.

1990 - 1995 **Vice-President and Senior Engineer**
Biokinetics & Associates Ltd.
Bioengineering Consultants, Ottawa, Ontario, Canada

1989 - 2000 **Senior Engineer - Director of Biomechanical Research**
Roads and Traffic Authority of NSW, Sydney

1987 - 1988 **Lecturer- Engineering Design,**
School of Mechanical Engineering, University of Technology, Sydney

1986 - 1987 **Research Engineer**
Biokinetics & Associates Ltd.
Bioengineering Consultants, Ottawa, Ontario, Canada

1984 - 1985 **Senior Research Officer**
Road Accident Research Unit, University of Adelaide

1980 - 1983 **Senior Research Officer**
Fuel Consumption and Emissions Test Laboratory, University of Sydney

1979 - 1980 **Project Engineer**
General Motors Holden P/L, Melbourne

1974 - 1975 **Teacher, Engineering Science**
Chatswood High School, Sydney

1972 - 1973 **Engineer**
Department of Public Works, NSW.

PROFESSIONAL ACTIVITIES

American Society for Testing and Materials (ASTM)
Former member - Technical Committee F-08 on Sports Equipment and Facilities (including protective headgear and protective clothing)

Association for the Advancement of Automotive Medicine (AAAM)
Member

Australian College of Road Safety
Board member of the Sydney Chapter

Australian Institute for Motor Sport Safety (AIMSS)
Member of the Research Committee

Canadian Standards Association Committees
Former member:
Fire-fighters Helmets
Bicycle Helmets
Wheelchair Restraint Systems

Engineers Australia
Chartered Professional Engineer, Biomedical College
Member and past chair of the National Panel on the Biomechanics of Impact Injury (NPBII)

Society of Automotive Engineers, Inc. (Both SAE Int. and SAE-A)
Former member of Task Force on Mechanical Human Body Simulation and selection committee for best paper

Standards Australia (SA) Committees
Member representing Engineers Australia on:
Helmet Test Methodology Committee
Bicycle Helmet Committee
Helmets for Motorised Vehicle Users Committee

SELECTED PUBLICATIONS AND PRESENTATIONS

Book Chapters

Gibson, T, Boström, O, Kullgren, A and Milthorpe, B: "The Mechanisms of Early Onset C5/C6 Soft-Tissue Neck Injury in Rear Impacts." In Neck Injury Biomechanics. Editor Pike, J. SAE International, Warrendale, USA, 2009.

Gibson, T: "Chapter 2 – Vehicle factors in whiplash injury and
Chapter 3 – Biomechanics of whiplash injury."
Published in RWG Anderson (Ed.), *Whiplash associated disorders: a comprehensive review*. Centre for Automotive Safety Research, University of Adelaide, South Australia, April 2006.

Ryan, G.A and Gibson, T., "Field Studies of Whiplash in Australia." In Frontiers in Whiplash Trauma: Clinical and Biomechanical. Editors Yoganandan, N. and Pintar, F., IOS Press, Harvard, MA, 2000.

Gibson, T and Bogduk N: "Automotive Design and Whiplash Injury." In The Spine: State of the Art Review, on Whiplash Injury. Editor D. Malanga, Hanley & Belfus, Inc. 1998.

Gibson, T, Bogduk, N, Ryan, GA and Sparke, L: "Neck Injury Research Needs: an Australian Perspective." In Frontiers of Head and Neck Trauma: Clinical and Biomechanical. Editors Yogananda, N and Pintar, F, IOS Press, Harvard, MA, 1998.

Selected Peer Reviewed Journal Papers

Douglas, C, Fildes, B and Gibson TJ. "Development of an occupant model for far-side vehicle crashes." Int. J. Vehicle Safety, Vol. 4, No. 3, 2009.

Gorrie, C, Duflou, J, Brown, J, Gibson, T and Waite, P: Extent and distribution of vascular brain injury in paediatric road fatalities. Journal of Neurotrauma 18 (9): 849-860, 2001.

Gibson T, Bogduk N et al.: Crash Characteristics of Whiplash Associated Chronic Neck Pain. J of Musculoskeletal Pain, Vol 8 (1/2) 2000.

Gallup, B., Gibson, T, Pedder, J, Newman, J, Hidson, D: Anthropometry: A Look at Six Techniques for Monitoring 3-D Human Shape. SOMA - Engineering for the Human Body, Vol. 3, No. 2, pp 35-42, 1989.

Gibson, T and,Bilger, R: Fleet-averaged Engine Matrices for Australian Vehicles and their use in Fuel Economy Modelling. Int. J. of Vehicle Design, Vol.8, No. 1, pp115-144, January 1987.

Paix, B, Gibson, T and McLean, A and Woodward, A: Severity of Injuries in Road Crashes: A Comparison of Injured Occupants of Forward Control and Conventional Passenger Vehicles. Medical Journal of Australia, July 1986.

Gibson, T, and McLean, A: Developments in Road Safety: Vehicle Factors. Transactions of the Institution of Engineers (Queensland Division), Vol. 25, No. 6, June 1984.

Wood, L, Joachim, C, Gibson, T and Sparke, L: Noise and Vibration Control in Passenger Cars and Trucks. SAE-Australasia, Vol. 39, May-June, 1979. (Award for Best Paper of 1979 and has been reprinted several times since)

Selected Peer Reviewed Conference Papers

Gibson,T, Henderson, M and Braithwaite, C: "Australian Motor Sport Crash Data Collection and Analysis." Proceedings of the SAE Motorsports Engineering Conference, Paper 08MSEC-0103, 2008.

Gibson, T, Thai, K, Saxon, J and Pollock, R. "The Effectiveness of Safety Equipment in Horse Racing Falls." Proceedings of the IRCOBI Conference of the Biomechanics of Impact, 2008.

Douglas, CA, Fildes, BN, Gibson TJ, Boström, O and Pintar, FA. "Modelling the Seat Belt to Shoulder-Complex Interaction in Far-Side Crashes." Proceedings of the Enhanced Safety of Vehicles Conference, Kyoto, 2007.

Douglas, CA, Fildes, BN, Gibson TJ , Boström, O and Pintar, FA. "Factors influencing occupant-to-seat belt interaction in far-side crashes." Proceedings of the Association for the Advancement of Automotive Medicine, Melbourne, 2007.

Gibson, T, Boström, O, Kullgren, A and Milthorpe, B: The Mechanisms of Early Onset C5/C6 Soft-Tissue Neck Injury in Rear Impacts. Proceedings of the 2005 IRCOBI Conference of the Biomechanics of Impact. Prague 2005.

Gibson,T: "Helmets and Head Protection – problems and opportunities." 7th International Neurotrauma Symposium, Adelaide, 2004.

Gibson, T and Anderson, R: "Investigating Head Injuries to Children Pedestrians in Accidents." Proceedings of the Road safety Researchers Conference, 2002.

Gibson, T, Benetatos, E, Newstead, S and Fildes, B: Improved Side Impact Protection: The Development Of Injury Assessment Functions. Proceedings of the Sixteenth Experimental Safety Vehicle Conference, Amsterdam, 2001.

Gibson, T, Benetatos, E, Anderson, R, Brown, J, Duflou, J, Waite, P, and Gorrie, C: The Use of Simulation to Assess Human Tolerance to Injury. Proceedings of the SimTecT Conference, Sydney, Australia, 2000.

Currie, A and Gibson, T: Vehicle Occupant Safety Modelling. Proceedings of the First Australasian Congress on Applied Mechanics, Melbourne, 1996.

Dalmotus, D, Gibson, T and Withnall, C: Side impact Opportunities. Proceedings of the Fifteenth Experimental Safety Vehicle Conference, Melbourne, 1996.

Newman, J, Withnall, C, Zellner, J and Gibson, T: The Performance Specifications for the Neck of a Motorcyclist Crash Test Dummy. Proceedings of the Fifteenth Enhanced Safety of Vehicles Conference, Melbourne, 1996.

Brown, J, Kelly, P, Griffiths, M, Tong, S, Pak, R and Gibson, T: The Performance of Tethered and Untethered Forward Facing Restraints. Proceedings of the IRCOBI Conference, Bron, 1995.

Gibson, T, Shewchenko, N and Withnall, C: Biofidelity Improvements to the Hybrid III Neck. Proceedings of the Fourteenth Experimental Safety Vehicle Conference, Munich, 1994.

Dalmotus, D, Newman, J and Gibson, T: Prospects for the Further Improvement of Side Impact Protection Based on Crash Testing. Proceedings of the Fourteenth Experimental Safety Vehicle Conference, Munich, 1994.

Gibson, T, Fournier, E, Garland, L, and McManmon, S: The Development of a Surrogate Mobility Aid (SMA). In Seat System Comfort and Safety - SP-963. Society of Automotive Engineers, Inc., Warrendale, PA, 1993.

Gibson, T, Newman, J, Zellner, J, Wiley, K: An Improved Anthropomorphic Test Device. Proceedings of the AGARD Aerospace Medical Panel Symposium on Aircraft Accidents: Trends in Aerospace Medical Investigation Techniques, Turkey, 1992.

Gibson, T, Hinrichs, R and McLean, A: Pedestrian Head Impacts: Development and Validation of a Mathematical Model. Proceedings of IRCOBI Conference, Zurich, 1986.

McLean, A, Paix, B. and Gibson, T: Occupant Injury Severity: Forward Control Passenger Vehicles. Proceedings of the 10th IAATM Congress, Tokyo, May 1985.

Gibson, T, Blumbergs, P, McCaul, K and McLean, A: Investigation of Head Injury Mechanisms in Vehicle Accidents - A Multidisciplinary Approach. SAE Paper No. 850093. Society of Automotive Engineers, Warrendale, PA 1985.

Paix, B, Gibson, T and McLean, A: Crashworthiness of Forward Control Passenger Vehicles. SAE Paper No 852183, Society of Automotive Engineers, Warrendale, PA, 1985.

Other Papers

Gibson, T: “Rear seat restraint biomechanics -Hidden performance enhancing technology on seatbelts.” Proceedings of the NPBII Seminar, Sydney, Engineers Australia, 2009.

Gibson, T, Thai, K, Saxon, J and Foote, C. “The Effectiveness of Jockey Safety Equipment in Falls.” Presented at the International Society of Biomechanics Conference 2007, Taipei, 2007.

Gibson, T, Thai, K and Anderson, RWG. “Motorcycle Helmet Protection and Basilar Skull Fracture.” Presented at the International Society of Biomechanics Conference 2007, Taipei, 2007.

Gibson, T: “Crash data Collection and Analysis.” Proceedings of the AIMSS Conference – Safety First. Melbourne, 2007.

Gibson, T: “Head and Neck Protection.” Proceedings of the AIMSS Conference – Safety First. Melbourne, 2007.

Gibson, T: “Injury Prevention - Engineering the Impact.” Presented to the IRMC, UNSW Sydney, 2005.

Gibson, T: Helmet Design and Head Injury Protection. Proceedings of the IEAust Conference on the Biomechanics of Impact Injury, Sydney, 2001.

Gibson, T, Bostrom, O and Milthorpe, B: Development of a Simple Model of a Cervical Spine Motion Segment. Proceedings of the Australian MADYMO Users Meeting, Melbourne, 2001.

Gibson, T and Benetatos, E: How to choose a bicycle helmet? Choice, March 2000.

Gibson, T, Benetatos, E and Knudsen, C: On Helmet Effectiveness. Proceedings of the IEAUST Head and Neck Injury Seminar, Sydney 2000.

Brown J, Gorrie C, Waite PM, Duflou J, Gibson T, and Anderson R, “A Study of Head Injury in Fatally Injured Child Pedestrians.” IEAUST Head and Neck Injury Seminar, Sydney 2000.

Gibson, T and Benetatos, E: Model Validation - An Engineer's Perspective. Proceedings of the 1999 Australian MADYMO Users Meeting, Melbourne, 1999.

Gibson, T and McIntosh. A: Rear End Impact Associated Neck Injuries. Proceedings of the 1997 Australian MADYMO Users Meeting, Melbourne, April 1997.

Gibson, T: Airbags - International Effectiveness. Workshop on Airbags, Institution of Engineers, Australia, Melbourne, April, 1997.

Bolduc, M, Tylko, S, Gibson, T, Fournier, E, Worswick, M and van Hoof, J: Exploration of the Helmeted Head Response to Ballistic Impact. Presented at the Specialist Team on Body Armour, San Diego, 1996.

Tylko, S, Gibson, T, Fournier, E and Bolduc, M: Development of Design Criteria for Use in Ballistic Head Protection. Personal Armour Systems Symposium 96, Cholchester, 1996.

Pedder, J., Dalmotas, D, Gibson, T., and Gilbert D. The Development of a Protocol for Documenting Vehicular Sitting Posture of Car Occupants Involved in Rear-End Collisions. Proceedings of the 22nd Annual Workshop on Human Subjects for Biomechanical Research. Fort Lauderdale, Florida, October 1994.

Gibson, T, Surowiak, J and Pierce, C: Chestband Measurement of Human Upper Torso Dynamic Response. Proceedings of the 20th Annual Workshop on Human Subjects for Biomechanical Research, Seattle, November 1992.

Gibson, T and Bilger, R: Standardized Transient Engine Maps for Australian Vehicles and Their Use in Fuel Economy Modelling. Proceedings of the Joint SAE-A/ARRB 2nd Conference on Traffic Energy and Emissions, Melbourne, Australia, 1982.

Bilger, R, Post, K., Gibson, T: Motor Vehicle Fuel Economy Models and the Impact of Catalysts. Short Course on Car Exhaust Catalysts, University of NSW, 1982.

Post, K, Maunder, A, Gibson, T, Kent, J and Bilger, R: Vehicle Emission Maps - the influence of some parameters. Proceedings of the International Clean Air Conference, Adelaide, Clean Air Society of Australia and New Zealand, Australia, 1982.

Kent, J, Post, K, Maunder, A, Gibson, T and Bilger, R: Motor Vehicle Fuel Economy. Proceedings of the NERDDC Workshop on Motor Vehicle Fuel Economy, February 24-25, Melbourne, Australia, 1981.

COURSES PRESENTED

Rear seat restraint biomechanics." Workshop on Frontiers in Vehicle Safety Technology and Testing - Road safety Researchers Conference, Adelaide 2008.

Biomechanics of Injury and Vehicle Crashworthiness Short Course. Accident Research Centre, Monash University, 2006.

Biomechanics of Injury and Vehicle Crashworthiness Short Course. Accident Research Centre, Monash University, 2003.(1)

Biomechanics of Injury and Vehicle Crashworthiness Short Course. Accident Research Centre, Monash University, 2003.(2)

Biomechanics of Injury and Vehicle Crashworthiness Short Course. Accident Research Centre, Monash University, 2002.

Biomechanics of Impact Injury Short Course. Unisearch, UNSW, Sydney, 1997.

Vehicle Factors in Road Safety. A component of the course, Road Safety Studies - NT03 offered by Vehicle and Equipment Safety, RTA of NSW and the University of New England, Armidale,1996.

Pelvic and Lower Limb Injury Biomechanics. Course in Crash Injury Biomechanics, Institution of Engineers, Australia, Sydney, June 1995.

Engineering Mechanics, School of Mechanical Engineering, University of Technology, Sydney 1987 and 1988.

Engineering Design, Lecturer in Charge, School of Mechanical Engineering, University of Technology, Sydney, 1987 and 1988.

SELECTED RESEARCH REPORTS

Gibson, T and Thai, K: (2007) Helmet Protection against Basilar Skull Fracture. Australian Transport Safety Bureau Road Safety Research Grant Report No. 2007-03, Canberra, June 2007.

Gibson, T, Thai, K, and Lumley, M: Child Restraint in Australian Commercial Aircraft. Australian Transport Safety Bureau Aviation Safety Research Grant Report No. B2004/0241, Canberra, March 2006.

Gibson, T and Cheung, A: Assessing the Level of Safety Provided by the Snell B-95 Standard for Bicycle Helmets. Australian Transport Safety Bureau Report Number CR 220, Canberra, July 2004.

Gibson, T, Britos, C and Wainohu, D: Analysis of Fall Arrest Gear Loading. Crashlab Report, 2002.

Pedder, J and Gibson, T: Evaluation of Occupant Protection in Buses. RONA Kinetics and Associates Report for Transport Canada, 2002.

Gibson, T, Benetatos, E and Corbett: "Heavy Vehicle Seat Belts" HIE Report for the Roads and Traffic Authority of NSW, 2001.

Gibson, T, Corbett, B and Brown, J: Crashed Vehicle Study - Heavy Under Run Analysis. HIE report for the Roads and Traffic Authority of NSW, 2001.

Gibson, T, Fildes, B, Deery, H, Sparke, L, Benetatos, E, Fitzharris, M, McLean, J and Vulcan, A : Improved side impact protection: a review of injury patterns, injury tolerance and dummy measurement capabilities, Report No. 147, Monash University Accident Research Centre, Clayton, Victoria, Australia, 2001.

Gibson, T, Corbett, B and Brown, J: Crashed Vehicle Study - Heavy Under Run Analysis. HIE report for the Roads and Traffic Authority of NSW, 2001.

Anderson R, Gibson, T and Benetatos, E: Computer and Physical Reconstruction of Pedestrian Accidents Involving Children. Road Accident Research Unit, the University of Adelaide, Adelaide, 2000.

Gibson, T and Benetatos, E: Motorcycles and Crash Barriers. HIE Report for the NSW Motorcycle Federation Inc. Sydney, 2000.

Gibson, T, Benetatos, E, Newstead, S and Fildes, B: Injury Assessment Functions for Use with the BIOSID. Accident Research Centre, Monash University, 2000.

Biokinetics and Associates: Motorcycle Crash Test Dummy Neck. Biokinetics and Associates Ltd. Report R95-03, April, 1995. .

Biokinetics and Associates: Belt Fit Test Device Fleet Measurement. Biokinetics and Associates Ltd. Report R94-06, May 1994.

Biokinetics and Associates: Test Method for a Biofidelic ATD Neck. Biokinetics and Associates Ltd. Report R93-02a, April 1993

Biokinetics and Associates: Response of the Human Thorax to Dynamic Upper Torso Belt Loading. Biokinetics and Associates Ltd Report R92-08, July 1992.

Biokinetics and Associates: Modified Torsional Response of the MATD Neck. Biokinetics and Associates Ltd. Report R92-15, December, 1992.