

**Entwicklung eines Protokolls zur objektiven und quantitativen
Analyse des Bewegungsvermögens der oberen Extremitäten**

Von der Medizinischen Fakultät
der Rheinisch-Westfälischen Technischen Hochschule Aachen
zur Erlangung des akademischen Grades einer Doktorin der Theoretischen
Medizin genehmigte Dissertation

vorgelegt von

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Tag der mündlichen Prüfung: 24. Januar 2011

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Helmholtz-Institut
für Biomedizinische Technik
an der RWTH Aachen

Shaker Verlag

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

Zugl.: D 82 (Diss. RWTH Aachen University, 2011)

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Printed in Germany.

ISBN 978-3-8440-0304-8

ISSN 1430-7316

Shaker Verlag GmbH • Postfach 101818 • 52018 Aachen

Telefon: 02407 / 95 96 - 0 • Telefax: 02407 / 95 96 - 9

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For my parents

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List of Abbreviations

AART	: Active angle reproduction test
ADL	: Activities of daily living
ANOVA	: Analysis of variance
CCD	: Charge-coupled device
c_{TH} , sternoclavicular	} : Joint centres
c_S , shoulder	
c_E , elbow	
c_W , wrist	
DOF	: Degree(s) of freedom
DV	: Dependent variable
EM	: Electromagnetic
LED	: Light-emitting diode
m_r , right;	} : Thorax markers
m_l , left	
NVC	: No visual control
ROM	: Range of motion
$r(t)$	: Direction vector of longitudinal axis of clavicle
SAIS	: Subacromial impingement syndrome
SEMG	: Surface electromyography
t_R	: Time of static reference measurement
T_{TH} , Thorax;	} Homogenous transformation matrices : representing the segment coordinate systems
T_{CL} , Clavicle;	
T_{UA} , Upper Arm; T_{FA} , Forearm	
Θ , Γ and Φ	: Rotation angles
3-D	: Three-dimensional
2-D	: Two-dimensional
VAS	: Visual analogue scale
WVC	: With visual control