Manual Handling The Spine

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The Encyclopedia of the Back and Spine Systems and Disorders Infobase Publishing This book highlights the problems and hazards of manual materials handling and provides ergonomic and engineering solutions for alleviating them. It is helpful for both researchers and practitioners who are committed to solving the multifaceted manual materials handling problem.

Spine Technology Handbook The Effects of Load-positioning Material Handling Equipment on Spinal Loading During Manual Handling of Bulk BagsLow back disorders among workers in manual materials handling industries are very prevalent and represent a large proportion of worker's compensation costs in the United States. A potentially significant source for LBD risk in these industries is manual palletizing operations. Previous studies investigating biomechanical loading of the spine for manual palletizing have identified load location on the pallet as one of the primary drivers for potential injury. However, evidence on the effectiveness of ergonomic interventions is limited, with no research investigating interventions that focus on modifying load location. The objective of this study was to evaluate the effectiveness to control LBD risk and spine loading of two interventions: a self-leveling pallet carousel designed to position the loads vertically and horizontally at the lift origin and an adjustable cart designed to raise loads vertically at the lift destination. Thirteen trained males (aged 18-40 years) participated in a simulated order selecting task. Spine loads that were predicted by an EMG-assisted model, LBD risk index, and perceived exertion were quantified for each intervention condition (e.g. carousel to traditional cart, pallet to traditional cart, pallet to adjustable cart, and carousel to adjustable cart). The results showed that combining both devices results in reduction in LBD risk (7%), spine compression (61%), anterior-posterior shear (72%), and lateral shear (63%). Individually, the carousel was responsible for the greatest reductions, but the lowest values were typically achieved by combining adjustable cart and carousel. The results from this study show that these, and similar devices may have the potential to reduce low back injuries in workplaces where palletizing and order selecting operations occur frequently. Further investigation into real-world feasibility and long term use effects is still needed to provide a more complete picture of the benefits of these load positioning devices.Guide to Manual Materials Handling Low back pain (LBP) is

estimated to affect up to 85% of people worldwide at some point during their lives and is highly prevalent in manual occupations. It is suggested to have a mechanical origin and lifting is a recognised risk factor. The lumbar spine was shown to have an intrinsic shape, specific to each individual, which is partially maintained between postures and affects response to static load. The role of intrinsic shape in dynamic load bearing and lifting has received little attention. This thesis describes a study investigating intrinsic lumbar spine shape in 30 healthy adults to determine its effects on lifting and potential role in LBP. Positional magnetic resonance imaging was used to take images of the lumbar spine in standing, flexion and extension postures and intrinsic lumbar spine shape quantified by a statistical shape model (active shape modelling). Biomechanical patterns and lumbar spine movement were analysed when lifting a weighted box from the ground without instruction and when stooping and squatting, using motion capture and a method developed to predict vertebral centroid position from external markers. Comparisons were made between sub-groups of intrinsic spine shape. Individuals with very lordotic lumbar curvatures tended to stoop when given a choice, resulting in greater lumbar and pelvic forces, and struggled to squat when instructed to. Those with a flat lumbar curve had a stiffer lumbar segment, compared to the more flexible lordotic spine, and preferred to squat. This resulted in more forces at the hips and knees. Individuals have an intrinsic lumbar spine shape that remains characteristic throughout flexion and extension, influences choice of movement when lifting a weight and hinders performance of some motions. These results indicate a role for spine shape in injury and LBP, with implications for current manual handling principles and guidance.

Patient Handling in the Healthcare Sector National Academies Press

"This booklet is written for managers and supervisors in industries that involve the manual handling of containers. It offers suggestions to improve the handling of rectangular, square, and cylindrical containers, sacks, and bags. "Improving Manual Material Handling in Your Workplace" lists the benefits of improving your work tasks. It also contains information on risk factors, types of ergonomic improvements, and effective training and sets out a four-step proactive action plan. The plan helps you identify problems, set priorities, make changes, and follow up. Sections 1 and 2 of "Improvement Options" provide ways to improve lifting, lowering, filling, emptying, or carrying tasks by changing work practices and/or the use of equipment. Guidelines for safer work practices are also included. Section 3 of "Improvement Options" provides ideas for using equipment instead of manually handling individual containers. Guidelines for safer equipment use are also included. For more help the "Resources" section contains additional information on administrative improvements, work assessment tools and comprehensive analysis methods. This section also includes an improvement evaluation tool and a list of professional and trade organizations related to material handling."--Page 6.

Basic Offshore Safety Psychology Press

This volume contains the proceedings of a conference held in Freiburg, West Germany, September 22-25, 1980, entitled "Manned Systems Design, New Methods and Equipment". The conference was sponsored by the Special Programme Panel on Human Factors of the Scientific Affairs Division of NATO, and supported by Panel VIII, AC/243, on "Human and Biomedical Sciences". Their sponsorship and support are gratefully acknowledged. The contributions in the book are grouped according to the main themes of the conference with special emphasis on analytical approaches, measurement of performance, and simulator design and evaluat ion. The design of manned systems covers many and highly diversified areas. Therefore, a conference under the general title of "Manned

Systems Design" is rather ambitious in itself. However, scientists and engineers engaged in the design of manned systems very often are confronted with problems that can be solved only by having several disciplines working together. So it was felt that knowledge about newly developed methods and equipment, applicable in the design process, is of common and increasing interest for all those who are engaged in the design of manned systems, from the earliest con ceptual design phases until operation under real circumstances. This seems to be particularly true in view of restricted resources of manpower and energy.

Musculoskeletal Disorders and the Workplace Springer Science & Business Media

Over the past decade, there has been rapid growth in bioengineering applications in the field of spine implants. Spine Technology Handbook explains the technical foundation for understanding and expanding the field of spine implants, reviews the major established technologies related to spine implants, and provides reference material for developing and commercializing new spine implants. The editors, who have a track record of collaboration and editing technical books, provide a unified approach to this topic in the most comprehensive and useful book to date. Related website provides the latest information on spine technology including articles and research papers on the latest technology and development Major technologies reviewed include devices used for fusion (screws, plates, rods, and cages), disc repair and augmentation, total disc replacement, and vertebral body repair and augmentation Technology landscape, review of published/public domain data currently available, and safety and efficacy of technology discussed in detail

Ergonomic Guidelines for Manual Material Handling John Wiley & Sons

The risk of low-back disorders (LBD) may be particularly great for women in the military, influencing training, costs and military readiness. The goal of this research is to quantify musculoskeletal loads on the spine of women performing manual materials handling tasks. This will permit assessment of risk factors for military women, and the potential to evaluate tasks and training methods for female military personnel. This goal of this research was accomplished by quantifying trunk geometry via MRI and incorporating muscle fiber orientation, investigating the muscle length-strength and force-velocity relationships during lifting trials, and developing and validating the

female biomechanical model utilizing these findings as inputs. Females exhibited smaller muscle physiological cross-sectional areas, moment-arms, and different characteristics for the length-strength and force-velocity modulation factors. Thus, biomechanical torso models need gender specific inputs for predicting spinal loading. Evaluation of spinal loading for a simulated military manual materials handling task indicated that females and males experienced similar magnitudes of spinal loading (e.g., compression force and shear forces) for many of the same tasks. However, since females tend to exhibit lower intervertebral disc compression force tolerance than males, they may be at an elevated risk for low back injury when performing the same tasks.

The Effects of Load-positioning Material Handling Equipment on Spinal Loading During Manual Handling of Bulk Bags [Toronto, Ont.,] : Labour Safety Council of Ontario

Every year workers' low-back, hand, and arm problems lead to time away from jobs and reduce the nation's economic productivity. The connection of these problems to workplace activities-from carrying boxes to lifting patients to pounding computer keyboards-is the subject of major disagreements among workers, employers, advocacy groups, and researchers. Musculoskeletal Disorders and the Workplace examines the scientific basis for connecting musculoskeletal disorders with the workplace, considering people, job tasks, and work environments. A multidisciplinary panel draws conclusions about the likelihood of causal links and the effectiveness of various intervention strategies. The panel also offers recommendations for what actions can be considered on the basis of current information and for closing information gaps. This book presents the latest information on the prevalence, incidence, and costs of musculoskeletal disorders and identifies factors that influence injury reporting. It reviews the broad scope of evidence: epidemiological studies of physical and psychosocial variables, basic biology, biomechanics, and physical and behavioral responses to stress. Given the

magnitude of the problem-approximately 1 million people miss some work each year-and the current trends in workplace practices, this volume will be a must for advocates for workplace health, policy makers, employers, employees, medical professionals, engineers, lawyers, and labor officials.

Intrinsic Lumbar Spine Shape Routledge Comprehensive insight into the offshore oil and gas industry for those intending to choose it as a career Full syllabus coverage for OPITO BOSIET, FOET, MIST and IMIST courses Produced in full colour with over 180 images Basic Offshore Safety covers everything that newcomers to the offshore oil and gas industry need to know prior to travelling offshore or when attending OPITO's Basic Offshore Safety Induction and Emergency Training (BOSIET), Minimum Industry Safety Training (MIST), Further Offshore Emergency Training (FOET) and International MIST courses. Primarily focused on the oil industry, this book introduces readers to the key safety topics in the offshore support vessel industry and common to the renewable industry. Written in easy to follow steps and including references to both the legislation and guidance where relevant, Abdul Khalique walks the reader through the hazards they are likely to encounter when travelling to, from or working offshore, showing how to minimise risks and deal with any issues that may arise at any stage of the work.

Back Pain Routledge Orthopaedic and Trauma Nursing provides practitioners working in orthopaedic and musculoskeletal trauma settings with the essential evidence, guidance and knowledge required to underpin effective practice. This comprehensive and contemporary textbook explores the variety of adult and paediatric clinical settings where orthopaedic and trauma practitioners work, including acute wards, clinics, community hospitals, nursing homes and patients' homes. Divided into 5 sections, this book looks at: key issues in orthopaedic and musculoskeletal trauma care; specialist practice issues; common orthopaedic conditions and their care and management; musculoskeletal trauma care; and care of children and young people. Suitable for students at degree level as well as those clinicians practicing in more advanced

orthopaedic and trauma care roles, Orthopaedic and Trauma Nursing is a foremost authority on orthopaedic and musculoskeletal practice for both students and practitioners. Orthopaedic and Trauma Nursing: Is strongly supported by the latest evidence, with chapters summarizing evidence, with reference to relevant and seminal research Offers practical guidance based on the relevant evidence Focuses on the perspective of the patient with patient narrative and case studies throughout Includes a section specifically dealing with children and young people

The Effects of Back Support Belts on Spinal Creep for Males Performing Manual Material Handling Tasks Elsevier Health Sciences

This book highlights the problems and hazards of manual materials handling and provides ergonomic and engineering solutions for alleviating them. It is helpful for both researchers and practitioners who are committed to solving the multifaceted manual materials handling problem.

Digital Human Modeling. Applications in Health, Safety, Ergonomics, and Risk Management: Ergonomics and Design Elsevier

This interactive CD with booklet provides an easy-to-follow presentation on manual handling for workers in timber manufacturing. This resource is specifically designed for workers with low literacy levels. The CD provides photos and videos with narration. The booklet provides guidance to trainers on learning activities and customising the presentations with their own site materials. The learning activities include: manual handling risk assessment and using good manual handling techniques. Topics include: * Good manual handling practices * How to avoid injuries * Manual handling and the law * Employer and employee OSH rights and responsibilities * Carrying out a risk assessment * Looking after your back * Structure and workings of the spine * Practical ways to minimise risks on the job.

Manual Materials Handling CRC Press

Clinical skills are a fundamental aspect of nursing care of children and young people. The Great Ormond Street Hospital Manual of Children's Nursing Practices is an evidence-based manual of practical skills in children's nursing which builds on the extensive expertise developed at Great Ormond Street Hospital. It encompasses all aspects of children's nursing from the most basic

aspects of everyday practice to advanced practice in high dependency and intensive care to provide a comprehensive resource for all qualified nurses, students, and other health-care professionals involved in caring for children, both in the hospital and the community setting. Children's and young people's nursing presents unique challenges. The Great Ormond Street Hospital Manual utilises the latest clinical research and expert clinical knowledge to address these challenges, and provides the underlying theory and evidence for nursing care of children. It provides a definitive guide to clinical skills procedures in children's and young people's nursing which enables nurses working with children and young people to practice confidently and deliver clinically effective family-centred care. Key features Offers access to clinical procedures developed through the extensive expertise from Great Ormond Street Hospital Contains evidence-based recommendations for expert care Encompasses all aspects of children's care Contains procedures guidelines students can rely on and effectively use in practice following qualfication Highlights specific needs of neonates and adolescents Placed in the context of inter-disciplinary care of the child Includes the rationale for each procedure - the 'why' as well as 'how' Information presented in a similar way to The Royal Marsden Manual of Clinical Nursing Procedures - offering continuity to those working in both adult and paediatric settings This title is also available as a mobile App from MedHand Mobile Libraries. Buy it now from iTunes or the MedHand Store.

Guide to Manual Materials Handling John Wiley & Sons

This report presents the outcome of an exercise carried out to establish scientifically-based principles for manual handling training, both for conventional (two-handed, symmetrical) lifting and for non- standard lifting, where the conventional technique is inapplicable

Manual Handling for Frame and Truss Workers CRC Press

Manual Materials Handling MMH creates special problems for many different workers worldwide. Labourers engaged in jobs which require extensive lifting/lowering, carrying and pushing/pulling of

heavy materials have suffered increasing rates of musculo-skeletal injury, especially to the back.; This guide is intended to include all activities involved in MMH lifting, pushing, pulling, carrying and holding. Recommendations are provided in the form of design data that can be used to design different MMH work activities. The guide is divided into two parts. Part I outlines the scope of the problem, discusses the factors that influence a person's capacity to perform MMH activities and / or should be modified to reduce the risk of injuries, and reviews the various design approaches to solving the MMH problem. Part II provides specific design data in six distinct chapters. The seventh chapter of Part II of the guide describes various mechanical devices that are available to aid MMH activities.; The guide is aimed at all concerned with the health impact of MMH activities; occupational health and safety workers; senior human resource managers; ergonomists; workers' compensation lawyers; union representatives.

Health and Safety in Brief Routledge

Hospital staff and caregivers are regularly exposed to biomechanical overload risk, particularly at spine and shoulder level—a risk factor that will continue to rise with the progressive aging of the population. Patient Handling in the Healthcare Sector: A Guide for Risk Management with MAPO Methodology (Movement and Assistance of Hospital Patients) details the analysis of patient handling risk using the MAPO method in different areas of healthcare and helps you develop strategies to mitigate them. Focusing on the organization of work, this approach gives you the tools to: Rapidly analyse the problem Rapidly identify solutions Effectively monitor the results of preventive actions One of the special features of this approach is that it employs tools that allow you to allocate financial resources to estimate what investments are needed to achieve specific results. This means taking the decision-making process out of the hands of ergonomics experts and putting it into those of healthcare facility administrators.

Nursing Care and the Activities of Living John Wiley & Sons

The Effects of Load-positioning Material Handling Equipment on Spinal Loading During Manual Handling of Bulk Bags

Manned Systems Design

Real World - RSTP

Low back disorders among workers in manual materials handling industries are very prevalent and represent a large proportion of worker's compensation costs in the United States. A potentially significant source for LBD risk in these industries is manual palletizing operations. Previous studies investigating biomechanical loading of the spine for manual palletizing have identified load location on the pallet as one of the primary drivers for potential injury. However, evidence on the effectiveness of ergonomic interventions is limited, with no research investigating interventions that focus on modifying load location. The objective of this study was to evaluate the effectiveness to control LBD risk and spine loading of two interventions: a self-leveling pallet carousel designed to position the loads vertically and horizontally at the lift origin and an adjustable cart designed to raise loads vertically at the lift destination. Thirteen trained males (aged 18-40 years) participated in a simulated order selecting task. Spine loads that were predicted by an EMG-assisted model, LBD risk index, and perceived exertion were quantified for each intervention condition (e.g. carousel to traditional cart, pallet to traditional cart, pallet to adjustable cart, and carousel to adjustable cart). The results showed that combining both devices results in reduction in LBD risk (7%), spine compression (61%), anterior-posterior shear (72%), and lateral shear (63%). Individually, the carousel was responsible for the greatest reductions, but the lowest values were typically achieved by combining adjustable cart and carousel. The results from this study show that these, and similar devices may have the potential to reduce low back injuries in workplaces where palletizing and order selecting operations occur frequently. Further investigation into real-world feasibility and long term use effects is still needed to provide a more complete picture of the benefits of these load positioning devices.

Teach Them to Lift CRC Press

Clinical skills are essential to the practice of nursing and learning these skills requires a wealth of both factual knowledge and technical expertise. Supplementing practical teaching, Developing Practical Skills for Nursing Children and Young People is a comprehensive skills text that describes clinical skills in the style of a tutor teaching at

Evidence-Based Patient Handling CRC Press

This guide will help any employee, supervisor,

manager, director or business owner to honestly evaluate their manual handling practices, enabling improvement in themselves and others to move and handle in a better, safer way.

The Application of Whole-body Musculoskeletal Modelling and Simulation to Estimate Lumbar Spinal Loading and Muscle Forces in Lifting Activities

CRC Press

The two-volume set LNCS 10286 + 10287 constitutes the refereed proceedings of the 8th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics, and Risk Management, DHM 2017, held as part of HCI International 2017 in Vancouver, BC, Canada. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The 75 papers presented in these volumes were organized in topical sections as follows: Part I: anthropometry, ergonomics, design and comfort; human body and motion modelling; smart human-centered service system design; and human-robot interaction. Part II: clinical and health information systems; health and aging; health data analytics and visualization; and design for safety.