A TASK-SPECIFIC APPROACH TO JOB
ACCOMMODATION IN PHYSICALLY-DEMANDING
POSITIONS

by

GF BESTER

submitted in partial fulfillment of
the requirements for the degree

DOCTOR PHILOSOPHIAE

in the

FACULTY OF HUMANITIES
(Department of Biokinetics, Sport- and Leisure Science)

University of Pretoria

Promoter: Prof. PE Krüger

Pretoria

May 2008
DEDICATION

To Elana... I am truly blessed to have you in my life.
I also wish to acknowledge the following individuals:

Prof. PE Krüger : My promoter, for recognising the potential in the project, for sharing his knowledge and wisdom and for showing faith in me as a researcher and a student.

Japie Lubbe : For all the valuable advice and assistance as an expert in the field of physical work capacity.

Christine Smit : For assisting with the statistical analysis of the data.

SA ELEC employees : The supervisors, technicians and all other employees who assisted in the development of the task-specific job accommodation tool.

SA ELEC biokineticists : For assisting with the data collection process.

My parents : For all their encouragement and support during the course of this study.
SYNOPSIS

Title : A task-specific approach to job accommodation in physically-demanding positions
Candidate : George Francis Bester
Promoter : Prof. P E Krüger
Department : Biokinetics, Sport- and Leisure Science
Degree : Doctor Philosophiae

Throughout the world, including South Africa, various approaches have been identified and implemented in an attempt to ensure that employees in physically-demanding positions are properly managed from a physical work capacity point of view, the primary goal always being to return the employee in need of assistance to full working capacity as soon as possible. The burning question has, however, always remained: “What happens to the employee in the meantime?”

This study focused on exactly that question, the aim being to develop a comprehensive tool to assist all parties concerned in managing the affected employee through the application of task-specific job accommodation.

The predetermined goal of the study was to develop a task-specific job accommodation tool for a physically-demanding position. This was achieved through a number of steps, which included an extensive literature review, a thorough job analysis, identification of a suitable test battery with related minimum physical requirements and cut scores, interviews, and the eventual development of the tool.

Once the task-specific job accommodation tool was completed, the next step was to make use of three case studies to assist in illustrating the way the tool is to be implemented, as well as to show the potential value of its implementation. The information from three actual incapacity cases in the company concerned was used for these case studies.
The results from this study are extremely positive and the three case studies have provided a glimpse of the potential value that could be added through the implementation of the job accommodation tool. The final product will greatly assist the company concerned in managing incapacitated employees in a manner that is beneficial to both the company and the individuals involved. Hopefully, this study will contribute to bring about a new era in the way South African companies and their occupational health departments approach the management of their incapacitated employees.

**Keywords**

- critical physical demands
- incapacity
- inherent requirements of a job
- job accommodation
- job analysis
- minimum physical requirements
- physical ability testing
- physical work capacity
- physically-demanding job outputs
- physically-demanding positions
- physically-demanding tasks
- task-specific
SAMEVATTING

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In Suid-Afrika, asook regoor die wêreld, word daar van ’n groot verskeidenheid benaderings gebruik gemaak in ’n poging om te verseker dat werknemers in poste wat fisiek van aard is doeltreffend bestuur word uit die oogpunt van fisieke werkskapasiteit. Die primêre doel met sulke benaderings hou gewoonlik verband met die vinnige herstel van fisiek-onbevoegde werknemers ten einde so gou as moontlik hul volle kapasiteit om werk te kan verrig terug te kry. So ’n benadering is goed en wel, maar die kwelvraag in so ’n geval bly steeds die volgende: “Wat gebeur in die tussentyd met die werknemer?”

Gedurende hierdie studie het die fokus juis op bogenoemde vraag geval. Die mikpunt was om ’n omvattende instrument te ontwikkel ten einde al die partye wat betrokke is by die bestuur van die geaffekteerde werknemer te help om doeltreffende, taak-spesifieke werksaanpassing toe te pas.

Die voorafbepaalde doel van die studie was om ’n taak-spesifieke instrument te ontwikkel vir ’n spesifieke, fisiek-veeleisende posisie. Hierdie doel is bereik deur ’n aantal stappe te volg wat onder andere die volgende ingesluit het: ’n omvattende literatuurstudie, ’n deeglike posontleding, die identifisering van ’n gepaste toetsbattery met gepaardgaande minimum fisieke vereistes en afsnytellings, gepaste onderhoude, asook die ontwikkeling van die instrument.

Na die voltooing van die taak-spesifieke werkaanpassingsinstrument was die volgende stap om van drie gevallestudies gebruik te maak ten einde te illustreer hoe
die instrument geïmplementeer moet word, met die verdere doel om die potensiële waarde van implementering aan te dui. Drie ware gevalle in die maatskappy waarop daar tydens hierdie studie gefokus is, is gebruik vir die gevallestudies.

Die resultate wat uit die studie voortgespruit het is uiterst positief, en die drie gevallestudies het ’n mate van insig verskaf betreffende die potensiële waarde wat toegevoeg kan word deur die implementering van die werkaanpassingsinstrument. Die finale produk sal ongetwyfeld ’n groot bydrae lever om die betrokke maatskappy te help met die bestuur van geaffekteerde werknemers op ’n wyse wat voordele sal inhou vir die maatskappy en die betrokke individue. Daar word vertrou dat hierdie studie ’n nuwe era sal inlei in die benaderings wat gevolg sal word tydens die bestuur van fisiek onbevoegde werknemers. Dit geld vir alle soortgelyke Suid-Afrikaanse maatskappye, asook die gesondheidsdepartemente in hierdie maatskappye.

**Sleutel terme**

- fisiek veeleisende poste
- fisiek veeleisende werkstake
- fisiek veeleisende werksuitsette
- fisieke-bekwaamheidstoetsing
- fisieke onbevoegdheid
- fisieke werkskapasiteit
- inherente vereistes van die werk
- kritieke fisieke vereistes
- minimum fisieke vereistes
- taak-spezifiek
- werksaanpassing
- werksanalise
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<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>ADP</td>
<td>Adenosine diphosphate</td>
</tr>
<tr>
<td>ATP</td>
<td>Adenosine triphosphate</td>
</tr>
<tr>
<td>beats/min</td>
<td>beats per minute</td>
</tr>
<tr>
<td>C</td>
<td>Cut score</td>
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<tr>
<td>CA++</td>
<td>Calcium</td>
</tr>
<tr>
<td>cm</td>
<td>centimetre</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>D</td>
<td>Does not meet minimum physical requirement</td>
</tr>
<tr>
<td>DND</td>
<td>Did not do</td>
</tr>
<tr>
<td>FCE</td>
<td>Functional capacity evaluation</td>
</tr>
<tr>
<td>FT fibre</td>
<td>Fast twitch muscle fibre</td>
</tr>
<tr>
<td>H⁺</td>
<td>Hydrogen</td>
</tr>
<tr>
<td>kcal</td>
<td>kilocalories</td>
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<tr>
<td>kg</td>
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<tr>
<td>kgf</td>
<td>kilogram force</td>
</tr>
<tr>
<td>l/min</td>
<td>liters per minute</td>
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<tr>
<td>M</td>
<td>Meets minimum physical requirement</td>
</tr>
<tr>
<td>ml/kg/min</td>
<td>millilitre per kilogram body mass per minute</td>
</tr>
<tr>
<td>mmHg</td>
<td>millimetre mercury</td>
</tr>
<tr>
<td>MPR</td>
<td>Minimum physical requirements</td>
</tr>
<tr>
<td>ms</td>
<td>millisecond</td>
</tr>
<tr>
<td>N</td>
<td>Number of subjects</td>
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<tr>
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<td>Physical ability testing</td>
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<tr>
<td>PC</td>
<td>Phosphocreatine</td>
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<tr>
<td>pH</td>
<td>Level of acidity</td>
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<tr>
<td>Pi</td>
<td>Inorganic phosphate</td>
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<tr>
<td>R</td>
<td>Rand</td>
</tr>
<tr>
<td>reps/min</td>
<td>repetitions per minute</td>
</tr>
</tbody>
</table>
RPE - Rate of perceived exertion
SA ELEC - South African Electricity Supply Company
sec - seconds
ST fibre - Slow Twitch muscle fibre
USA - United States of America
VO₂ - Oxygen consumption
VO₂ max - Maximal oxygen consumption / aerobic capacity
∑ - Sum
1-RM - One-repetition maximum
$ - United States dollar
% - Percentage
˚ - Degrees