


AOTA Student Conclave '09

Industrial Occupational Therapy Programs

Paul A Fontana, OTR, FAOTA
November 2009


Paul A Fontana, OTR , FAOTA

- ▣ Occupational Therapist with 33 yrs experience
- ▣ Testified Before US Senate RE: Ergonomics
- ▣ Testified Before OSHA on Ergonomics in Nursing Homes
- ▣ Served on National Advisory Committee on Ergonomics (NACE) for OSHA
- ▣ Accepted as expert in state and federal courts in injury prevention & return to work issues, symptom magnification and ergonomics
- ▣ Fellow, American Occupational Therapy Association



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Center for Work Rehabilitation, Inc



- ▣ Started CWR in Lafayette, LA in 1986
- ▣ Expanded to offer out patient PT in 1988
- ▣ Expanded to Houston clinic in 1989
- ▣ Licensed group in New Foundland, Canada to use PHA testing protocols in 1995
- ▣ Built 22,000 sq foot Fontana Center in 1996
- ▣ Licensed group in Anchorage, Alaska to use PHA and FCE testing protocols in 2009

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CWR Customer List

<ul style="list-style-type: none"> ▣ Drilling Companies ➢ Global Santa Fe ➢ Transocean ➢ Pride Offshore & International ➢ Hercules Offshore ➢ Diamond Offshore ➢ ENSCO ➢ Nabors Offshore & Land Drilling ➢ Scorpion Drilling 	<ul style="list-style-type: none"> ▣ Drilling Companies ➢ Noble Drilling ➢ Grey Wolf Drilling ➢ Premium Drilling ➢ Sundowner Drilling ➢ Key Energy Drilling ➢ J P Oil Company ➢ Chiles Offshore ➢ Frontier Drilling
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CWR Customer List

<ul style="list-style-type: none"> ▣ Oil Production Companies ➢ Bp North America ➢ Bp Alaska ➢ Chevron Texaco ➢ Conoco Phillips ➢ Island Operating ➢ Taylor Energy ➢ Forest Oil ➢ Stone Oil ➢ Greystar ➢ UNOCAL ➢ BHP Billiton ➢ Marathon Oil Company ➢ Cabot Corporation 	<ul style="list-style-type: none"> ▣ Oil Service Companies ➢ AGI Industries ➢ Air Gas ➢ Computolog ➢ Delmar International ➢ Fairfield Industries ➢ Franks Casing Crew ➢ Gator Hawk ➢ Hanover ➢ TIMCO ➢ Grasso Production ➢ Woodgroup Wireline & Logging
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CWR Customer List

<ul style="list-style-type: none"> ▣ Trucking / Shipping ➢ Dupre Trucking ➢ Air Gas ▣ Municipalities / School Syst ➢ Cities of Lafayette & Abbeville ➢ Lafayette & Vermillion Parish Schools ➢ Catholic Diocese School ▣ Utilities & Mining ➢ Cargill Salt Mine ➢ N American Salt Mine ➢ Slemco Power & Light ➢ CLECO Power ➢ Centerpoint Energy 	<ul style="list-style-type: none"> ▣ Manufacturing ➢ Temple Inland Paper Mill ➢ Boise Cascade Paper ➢ Access Oil Tools ➢ LA Pigment Co ➢ Degussa Engineered Carbon ➢ Lynondell Citgo ➢ Pasadena Refining ➢ Shell Chemical ➢ Shell Refinery, Deer Park, TX ➢ Columbia Chemical ➢ Samson Rope ➢ International Paper ➢ Machine Specialties & Manufacturing
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CWR Customer List

- ▣ **Catering / Food Service**
 - Eurest Offshore Catering
 - Taylor International
 - Acadiana Bottling
 - Quality Brands
 - Bordens Milk
- ▣ **Offshore Boating / Shipping**
 - Conoco Boats
 - Two Rivers Shipping
 - Delmar International
 - BeeMar Offshore Marine
 - Sea River


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Trained in "medical / education model"

- ▣ Hospital / Rehabilitation / Skilled Care Facilities / nursing homes / home health
- ▣ Out patient clinics, generally specializing in hands or pediatrics
- ▣ School based occupational therapy

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Find an area of practice that you have a **PASSION** for and go for it!

Industrial Injury Prevention and Return to Work Programs


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OT education makes us uniquely qualified for industrial market

- ▣ Education / Training in
 - Anatomy / physiology / kinesiology
 - Medical conditions / pathology
 - Biomechanics / behavioral
 - Activity analysis
 - Clinical Reasoning


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Industrial Injury Prevention: Ensuring a Defensible Program

- ▣ Quantifiable Physical Job Descriptions
- ▣ Realistic Post Hire Assessments
- ▣ Back Education and Proper Lifting Training
- ▣ Ergonomics
- ▣ On Site Occupational Therapy
- ▣ Fitness Programs


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Return to Work Programs

- ▣ Quantifiable Physical Job Descriptions
- ▣ Work conditioning and work hardening programs
- ▣ Functional Capacity Evaluations
- ▣ Ergonomics


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Federal law (EEOC / DOJ / ADA)

- Prohibits companies from discriminating based on an individual's
 - Race
 - Color
 - Creed
 - National Origin
 - Gender
 - Age
 - Disability
- Allows companies to
 - Determine the essential functions of the job as they relate to a business necessity
 - Test individuals to ensure they can safely perform the work when test is realistic to job requirements


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What does EEOC and ADA Allow?

- All current employment law allows an employer to
 - Determine the physical requirements of the job (**Physical Job Descriptions**)
 - Test individuals to ensure they can physically perform the work they are being hired for (**Post Hire Assessments**) or when attempting to RTW following an injury or extended illness (**Functional Capacity Evaluations**)


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Job Descriptions are **NOT** required by ADA but

- If the job descriptions are **written in advance** of the offering of the position
- If the physical job demands are **quantifiable**
- If the physical demands are **uniformly** enforced
- If it can be shown as a **business necessity**
- the courts will look at this as proof the job functions are essential

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Job Descriptions

- "Everything" depends on quantifiable, reliable, defensible job descriptions
 - Interview and Hiring
 - Medical Review
 - Post Hire Assessments
 - RTW / FCE Questions


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Building a Defensible Program

Job descriptions that **quantify** the physical requirements necessary to perform the essential job functions in **measurable** terms are defensible in state and federal courts against charges of discrimination based on race, color, creed, sex, age, national origin and or disability

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Work Injury Prevention Programs Starts With

- Quantifiable Written Job Descriptions
 - Physical Essential Job Functions
 - Written in measurable terms
 - No terminology such as frequently, occasionally, etc which cannot be measured
 - Clearly quantify the physical requirements

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Danco & Curale Marine Contractors, Inc.
Job Description

Job Title: Offshore Roustabout

Examined (Y/N):	No	JOB CODE:	
Checked (Y/N):		DOC CODE:	
Start Date and Shift:		Division:	Labor Services
Location:		Department:	
User Defined:		Unit:	SSSS
Prepared by:	Richard W. Kursh, Ph.D., PT	Date:	

Summary: Loads and unloads supplies and equipment to and from boats and platforms and do general clean up work and maintenance of oil and gas producing platforms. Must be able to travel by helicopter and/or boat to and from job site.

Essential Duties and Responsibilities include the following: (others may be assigned)

1. Loads and unloads equipment and supplies to and from vessels and platforms.
2. Loads and unloads supplies to and from supply room.
3. Upkeep of platform facilities: sweeps, mops, etc. and performs various other duties and responsibilities.
4. Install/replace nuts, bolts, valves, fittings, piping, etc. on production facility or platform.

Qualification Requirements: To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience

1. High school diploma or general education degree (GED) preferred.
2. One to three months related experience and/or training.
3. Equivalent combination of education and experience.

Language Skills

1. Ability to read and interpret documents such as safety rules, operating and maintenance instructions and procedure manuals.
2. Ability to speak effectively before groups of customers or employees of organization.
3. Ability to write routine reports and correspondence.

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Offshore Roustabout

Mathematical Skills
Ability to add, subtract, multiply and divide in all units of measure, using whole numbers, common fractions and decimals.

Reasoning Ability
1. Ability to apply commonsense understanding to carry out instructions furnished in written, oral or diagram form.
2. Ability to deal with problems involving several concrete variables in standardized situations.

Certificates, Licenses, Registrations
1. Driver's License
2. Must be willing to be trained for any certification he/she does not possess or will need in the future to perform this job.

Other Skills and Abilities
1. Must be able to pass pre-employment and drug screens.
2. Must be able to swim.
3. Must be able to hang from a rope for 10 seconds.
4. Must be able to work at elevated heights.
5. Must be able to get to the job site on schedule.
6. Must be able to work day and/or night shifts.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing this job, the employee must be capable of the following physical demands:
1. Standing and walking are constantly required. These activities are required to be performed on all surfaces.
2. Climbing and balancing are frequently required to be able to climb up and down stairs, ladders, cranes, etc.
3. Pushing and pulling are frequently required for such tasks as using ratchets, wrenches, shovels, etc.
4. Lifting and carrying are constantly required for handling material (see section on material handling).
5. Reaching and grasping, requiring full range of motion of the shoulder, elbow, hand, wrist and fingers are frequently required.

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Offshore Roustabout

6. Stopping and Kneeling: Stopping, involving flexion of the hips, knees and ankles, and kneeling, involving flexion of one or both knees and ankles, are frequently required to perform low work (below upper thigh level). Alternate methods of performing low work using flexion of the back, rather than stopping and kneeling, reduce excessive forces on the lower spine and may be determined to be unsafe by NIOSH guidelines.
7. Sitting: Involving flexion of the hips and knees is occasionally required for performing duties of an offshore roustabout.
8. Hand Dexterity: The use of hands to finger, to handle or feel objects, tools or controls, is constantly required. Must be able to hand paperwork to crane operator and fill out timecards.

Material Handling

Occasional Maximum Lifting Requirements

- Validated Maximum Lifting Requirements
- Occasional Lift
- Weight: 50 + 100lbs. (material: boxes of supplies - 3x3)
- Vertical Distance Handled: floor to waist

Frequent Lift

- Weight: 25 - 75lbs. (material: boxes of materials - supplies and valves)
- Vertical Distance Handled: floor to shoulder

Constant Lift

- Weight: 25 - 50lbs. (material: boxes of supplies, etc.)
- Vertical Distance Handled: floor to shoulder

Occasional Carry

- Validated Maximum Carrying Requirements
- Weight: 50 + 100lbs. (material: boxes of supplies, etc.)
- Type of Carry: two-handed
- Distance of Carry: 25 feet

Frequent Carry

- Weight: 25 - 75lbs. (material: boxes of supplies, etc.)
- Type of Carry: two-handed
- Distance of Carry: 25 feet

Constant Carry

- Weight: 10 - 25lbs. (material: boxes of supplies, etc.)
- Type of Carry: two-handed
- Distance of Carry: 25 feet

Special Regress

1. Hearing: Hearing ability in the full frequency ranges for humans is required and essential in order to understand verbal instruction, detect malfunctioning equipment and to respond to warning sounds in cases of emergency.

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If you are the person responsible for testing to see if a person is qualified for the job

What / How are you going to do to test:

- Occasional lifting 50 – 100 lbs to waist
 - ◆ 1 x / hour or 1 x / day or 1 x / 30 minutes or ?
- Frequent lifting 75 lbs to shoulder
 - ◆ Every 60 seconds all day or 5 x / minute or ?
- Frequently climb stairs and ladders
 - ◆ 1 flight / ½ hour or 10 flights in quick succession
- Frequently push / pull on ratchets / wrenches
 - ◆ Force of 25 lbs or 150 lbs? Then how often in succession

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Remember

- Someone's job / safety will depend on your decision
- The ability of the company to defend a lawsuit will depend on your decision and it must be
 - Realistic to the requirements of the job
 - Essential to the performance of the job
 - Tested in a manner that is similar to the job


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Department of Labor Classification

- Occasional - 0 % to 33 % of workday
- Frequent - 34 % to 66 % of workday
- Continual – more than 67 % of workday

If work 10 hour day, then a frequent occurrence is 3.4 – 6.6 hours. How often during this time no one knows!


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It is going to be important to all the processes and personnel that rely on the job descriptions that the **frequency** of each physical requirement be **quantified** in terms that are measurable for

- > # of occasions person expected to do without the opportunity to stop and perform another task
- > total # occasions reasonable per workday


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Physical Requirements to Quantify


- ✓ Sit
- ✓ Stand
- ✓ Walk
- ✓ Climb Stairs
- ✓ Climb Ladders
- ✓ Lift and Carry
- ✓ Climb and Carry
- ✓ Push and Pull
- ✓ Position Requirements
 - > Bend
 - > Stoop
 - > Squat
 - > Crawl
 - > Work overhead
 - > Work beneath feet

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Positional / postural components may be as important as any of the major physical components in RTW situations. For example, if the crane operator has had a cervical fusion and has limited cervical flexion and extension, the position required to operate the crane may determine his/her RTW status and not the ability to use arms, sit, ...


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Essential Function Physical Requirements Description

- Specific enough to be realistic to the job requirements
- General enough to take into consideration various worksite / task differences seen in the job
- Employee input in development and in the validation process **mandated** by courts


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Activity Analysis will.....

- Occupational Therapy training in how to break down and analyze activities crucial in being able to analyze jobs and
 - > write quantifiable / measurable physical job descriptions
 - > develop ergonomic abatement plans that will resolve the “hazards” within the job or how the job is being performed

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Finishing Shipping Operator B

Some of the criteria under lifting

1. On balance, on a monthly basis, the B Operators on shift will have to verify the accuracy of the scales. This requires the two B Operators to work together, one handing the 50 lbs (8" x 6" x 7" weights with handles) from the storage container located @ floor to 2" high level, lifting to a 42" height to hand to the other Operator who sets the scale. Each individual will handle forty of the 50 lbs weights on two separate occasions during the calibration procedure.
2. Boxes of glue (14" x 7" x 18") weighing 50 lbs each can be carried 30 feet and are changed out approximately 4 times per shift. In addition, cases of labels (20" x 12" x 6") and weighing 75 lbs can be carried 20 feet, generally 1 x every 2 days.
3. The employee will remove the butt rolls of wrapper stock, weighing 50 lbs to 80 lbs. This occurs on balance 5 times per shift and requires the individual to hold one end of the roll while pulling the other end of the 44" to 78" long cylinder roll off the rack and carrying it 20 - 30 feet to the disposal area.


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Firefighter Criteria for Stair Climbing

The Firefighter will wear full bunker coat / turn out gear including air pack. This additional equipment weighs 56 lbs. He / she will be wearing this throughout the fire emergency. There are regular occasions where the Firefighter will have to walk several hundred to a thousand feet plus up / down 2 - 4 flights of stairs to reach the emergency area. The worst case scenario would be when he / she is called upon to climb to the fire area. This requires the individual to climb 8 flights of stairs, all while wearing the 56 lbs emergency gear and while carrying a 52 lbs hotel pack of fire hose. For the individual to be able to respond to an emergency at the fire area in a timely manner, it is reasonable for the Firefighter to climb this area while wearing the 56 lbs of turn out gear and while carrying a 52 lbs of hose / additional gear or supplies in 10 minutes. When reaching the 8th floor, the employee must be able to respond to the fire emergency.


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The critical component to ensure compliance with EEOC and Federal & State Hiring Statutes

- Quantifiable Physical Job Descriptions that are developed / validated with input from employees doing the job
- Realistic Post Hire Assessments that are validated by the employees doing the job and RTW Programs based on these Job Requirements


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Quantifiable Physical Job Descriptions

- Go on site / interview employees who are doing the job
- Observe them work
- Weigh / measure the objects lifted / carried, forces pushed / pulled, stairs / ladders climbed, postures maintained
- Quantify, in measurable terms, the frequencies, postures, Necessary to safely perform the job


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Types of questions I am specifically looking to have answered

- How long do you have to stand (walk, flights of stairs / ladders, sit, etc) at any one time before you stop to perform work?
- What surfaces are you standing / walking / kneeling on and what type shoes / boots are you wearing?
- How often throughout the workday? Every / average day and worst case scenario?

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Types of questions I ask for all the areas of concern / work

Standing: Total Duration: _____
 Surface _____ Duration Without Break _____
 Work Performed: _____


Walking: Total Duration: _____
 Surface _____ Duration/distance Without Break _____
 Work Performed: _____

Pace: _____

Sitting: Total Duration (Hours): _____
 Surface _____ Duration Without Break _____
 Work Performed: _____

Bending/stooping: Total Duration: _____
 Surface _____ Duration Without Break _____
 Work Performed: _____

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Kneeling: Total Duration: _____
 Surface _____ Duration Without Break _____
 Work Performed: _____

Crawling: Total Duration: _____
 Surface _____ Duration Without Break _____
 Work Performed: _____

Prone/supine: Total Duration: _____
 Surface _____ Duration Without Break _____
 Work Performed: _____

Overhead Work: Total Duration: _____
 Duration Without Break _____
 Work Performed: _____

Climbing Stairs / Ladders / Uneven Surfaces:
 Height _____ On What _____
 Handrails _____ Frequency _____
 Anything Carried _____
 Work Performed: _____

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Lifting:
 Object _____
 Weight _____ Height Started and Ended _____
 Frequency _____ Size of Object _____
 Position Required to Initiate and Complete Task _____
 Work Performed: _____

Carrying:
 Object _____
 Weight _____ Size _____ Distance _____
 Frequency _____
 Work Performed: _____

Pushing / Pulling:
 Object _____
 Force Required _____
 Over What Surface _____ Size of Object _____
 Distance _____ Frequency _____
 Work Performed: _____

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- ### I ask that question for all these areas of work
- ✓ Sit
 - ✓ Stand
 - ✓ Walk
 - ✓ Climb Stairs
 - ✓ Climb Ladders
 - ✓ Lift and Carry
 - ✓ Climb and Carry
 - ✓ Push and Pull
- Position Requirements**
- Bend
 - Stoop
 - Squat
 - Crawl
 - Work overhead
 - Work beneath feet
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Quantifying Operator's Push / Pull Requirements on valves / levers

The CPS Operator will have occasion to isolate and lock out / tag out a motor / pump or valve. This will require the individual to exert 120 - 150 lbs of force on the 12" - 14" valves or levers. On balance the individual will exert this much force to initiate or conclude the job whereas the 20 - 30 revolutions the job requires will only require 40 - 50 lbs of continual force. When needed the employee will use a valve wrench to assist with the job. This is not a daily occurrence but when it is called for, the employee can perform this 3 - 4 times in relative succession while working from a 12" to 5' height. When torquing on bolts, the employee will exert similar forces while pushing or pulling on a wrench. There are times where the employee will have to remove 12 - 14 bolts thus requiring him / her to repeatedly torque 24 - 30 times with the forces listed above.

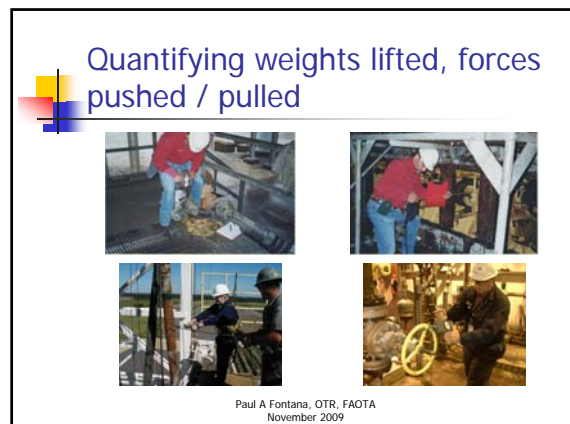
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Postural Requirements for a Vessel Captain

Bending / Stooping / Squatting / Kneeling / Crawling: The employee will have to assume a variety of positions while performing or inspecting the work. These body positions generally do not require prolonged and sustained postures of more than a minute without the ability to change positions as desired or fatigued - as long as the employee is able to reach the area he / she is inspecting. The employee will have to independently transition to and from the ground without the aid of a stationary object, bend, stoop, squat and or kneel for relatively short time periods of under 1 minute when inspecting work performed. Crawling is not found to be an essential job function for this position.

Helicopter Evacuation: When exiting from a helicopter in response to an emergency crash where the doors are not operational or available for exiting the helicopter, the individual will have to be able to exit through the push out window openings as small as 26" wide x 21" tall (Bell 412).

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Validation Process is Critical to establishing a defensible program

- Document all the names / positions of the folks who
 - Explained /demonstrated the work to be done ensuring that these consist of employees who are doing the work
 - Weigh /measure /name all critical items lifted / carried
- Read the written job description to another group of employees who are doing the job, documenting their names / positions and get them to validate what was written
- Have management personnel review documents and document names / position of folks validating the job descriptions

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Realistic Post Hire Assessments

- Once I knew what the jobs were and what the physical tasks involved included, I was able to develop a clinic using real work activities that allowed me to assess whether a person could perform the critical task involved in the job, testing it in a safe environment

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Post Hire Assessments

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Post Hire Assessments Must

- Be uniformly given to all employees in the same classification hired (if you test Shipping B Operators you have to test all Shipping B Operators but don't necessarily have to test receptionists)
- The test requirement must truly be essential to the job and consistent with business necessity
- The testing protocol cannot speculate on an individual's abilities or lack thereof

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Post Hire Assessment

- Must be designed to **avoid speculation** as to a person's ability (or lack thereof) to perform the essential job functions in a safe and efficient manner
- Objective documentation of baseline data of employee's current physical status

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Post Hire Assessment

- Eliminate those individuals who are physically not able to safely and efficiently perform the essential job functions
- Evaluates new hires in a safe manner
- Initiates the safe work practices before the new hire even starts work

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Computerized Static Testing "Strength Testing"

- Primarily Use: Hanoun and Arcon Equipment
 - Quick – takes generally less than 20 - 30 minutes
 - Requires minimal space (12' x 12')
 - A non technical person can be trained to perform test
 - Able to implement uniform testing procedure in a variety of places generally overnight
 - Inexpensive equipment cost - \$ 7,000 - \$ 17,000
 - Inexpensive to companies - \$ 90 - \$ 120

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Arcon Static Strength Test

- This is a photo from the Arcon training manual
- Tests static lifting and push / pull ability
- Would any therapist teach a person to lift in this manner?
- Belief that a person can dynamically lift 1/3 of force they can statically pull
- Cross check lift – if the person lifts more like this than in a lordotic posture then they are "faking"
- We should not put a person at risk of injury to determine reliability of effort



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Hanoun Testing Equipment

- Tests static lift, push and pull ability, dynamic lift of box from floor to adjustable shelf and has fingering MTM assessment component
- Same essential body position for testing static lifting as the Arcon – static pull @ 6" and 10" vertical height



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Computerized Strength Testing Court Challenges / Ruling

- This involved the Arcon testing equipment
- 1996 federal court decision (Shell Western) stated
 - EEOC Rules: strength testing *discriminates against women*
 - there is *no correlation* between a person's ability to statically pull and their ability to dynamically lift and handle weights
 - Shell Western did not have written job descriptions
 - Shell Western did not allow individuals who failed to retake the test at a later time
 - Ruled in favor of the Plaintiff for \$ 300,000

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Court Challenges to relying on strength testing

- EEOC v Dial Corp: 2/3/05 Iowa
 - "Dial Corporation discriminated against female job applicants at an Iowa meatpacking facility by requiring a pre-employment *strength test* that had a disparate impact on women, a federal court ruled Feb 3"

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Risk Associated with Static Strength Testing

- Static strength testing can significantly increase the potential for injury
- Static strength testing has been shown to discriminate against women
- Courts have shown there is no correlation between an individual's ability to static pull and dynamically handle weights

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T. S. Physical Therapy Lawsuit – Actual Photo

- A 200 lbs man will put 800 lbs of back compression forces on his disc @ L 3,4,5 just getting in this position. If he pulls with 200 lbs of jerk force, back compression forces instantly reach 4,000 lbs
- This individual ruptured a disc in his back while performing the lift seen here. Estimated back compression forces with this lift exceeded 5,000 lbs
- Court settlement in favor of Plaintiff for \$ 400,000



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Arcon Dynamic Lifting Test SPOT – Simulated Physiological Occupational Tolerance

- This is the “job specific dynamic test”
 - When asked why the SPOT is for 15 minutes, Arcon trainers response was: “A cardiac stress test generally takes 12 – 15 minutes so Arcon uses the 15 minute time period to predict ability to lift all day (8 – 12 hours)”
 - Lift the job weight requirement 6 x per minute for 15 minutes. If he/she can do this – pass
 - If the heart rate exceeds 75% of predicted maximum - fails
 - Does not take into consideration bio-mechanics of lift. Simply looks at ability to lift – not how

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EEOC v. Dial Case: 2005

- The court found in favor of EEOC that the post offer assessment as performed by Dial was “more difficult than the job”.
- Test designed by an Occupational Therapist and consisted of:
 - Lift & carry a 35 lbs rod 10 feet and to a height 67” and return 6 x /minute for 7 minutes (every 10 seconds). Speculation was if an individual could do 42 lifts in 7 minutes then they could do it all day
- The job requirement
 - One lift every 48 seconds (or 8 lifts in 7 minutes)

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Realistic Job Simulation PHA

- Job simulation is realistic to the job both in terms of actual task as well as frequency of activity performed over a 2 ½ - 3 ½ hour time period
- Clinic is non climate controlled so as to include the heat and humidity factor in to determining whether or not the individual is safe to continue testing or to hire

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Realistic Job Simulation Testing

- Where the individual applying for the job participates in realistic job simulated tasks in a non climate controlled environment.
- Repetitions are closely related to actual job requirements
- Test protocols validated by current employees



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Realistic Job Simulation Post Hire Assessments

- Gives you absolutely the best prediction of whether someone is able to do the job safely and efficiently
- Ability to evaluate a person's attitude
- Introduces safety training pre-work
- Requires a lot of space & equipment
- Difficult to re-produce testing locations

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CWR, Inc. Post Hire Assessment Includes

All activities monitored by **ON SITE**
Occupational Therapists

- Medical Questionnaire
- Medical Releases as needed
- Musculoskeletal Assessment
- Stretching Warm Up Participation
- Back Education Training and Job Specific Lifting Assessment
- 3 – 4 Hours of Simulated Work Activities

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Musculoskeletal Assessment by Occupational Therapist



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3 ½- 4 Hours of Job Simulation



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Realistic Job Simulation PHA the Fontana Center – 2008 Results


- 8,000 PHA performed with a failure rate of approximately 18 % overall
- This means that 1,440 persons who passed the interview and background check, passed the medical physical and drug test and who otherwise would have gone to work, unable to safely do the job for 4 – 5 hours

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Case Study – Devall Towing, Hackberry, LA

- 1991 Paid \$1,291,000 in claims
Their insurance company representative contacted the Fontana Center to see if we could develop a hiring screening program for them because they were in jeopardy of going out of business after 40 years because they were unable to afford the premium for their insurance policy


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Devall Towing and Boat Company Injury Reduction Process

- Developed quantifiable job descriptions for every position on the vessels
- Validated job descriptions and PHA
- Taught back education and stretching program to all employees
- Implemented PHA for all new hires. Failed 33 % of all new hire employees that first year of operations


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Case Study – Devall Towing, Hackberry, LA

- 1992 – Started new hire testing
 - 1992 - \$ 295,000 in claims
 - 1993 - \$ 3,000 in claims
 - 1994 - \$ 0.00 in claims
 - 1995 - \$ 0.00 in claims
 - 1996 - \$ 0.00 in claims
 - 1997 – one injury RTW 4 weeks
 - 1998 - \$ 0.00 in claims
 - 1999 - \$ 0.00 in claims


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Case Study – Devall Towing, Hackberry, LA

- Premiums for workers comp insurance have **decreased \$ 800,000/year each of the last 5 years**
- They travel 2 hours each way to reach the Fontana Center


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Does it Work?

- **Global Santa Fe Drilling Co spent 75% of their injury dollars on folks working less than 2 hitches**
- **After implementing new hire testing criteria with CWR, *not one 'Lost Time Accident' or 'Modified Return to Work' incident on any new hire employees* during the first four months of employment**


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Lou Dupre, Asst. Personnel/Safety Manger Sea Mar Management

- **“We have been sending our prospective employees to The Fontana Center for about 9 years. We have had nothing but good results from the pre-employment physicals done with The Fontana Center. It has definitely helped our Lost Time Incidents by putting our prospective employees through this type of physical.**
- **More than protecting us from lawsuits from lingering health problems, we see where our people have benefited from finding out health problems that they didn't know about.”**


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Return to Work Program

- All employees out of work (work related / non work related) for 30 days or longer will undergo a **multiple day functional capacity evaluation** to assist his / her physician in determining RTW ability


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RTW Assessment: What is a Functional Capacity Evaluation

- Definitive test of the client's abilities and limitations as compared to the physical requirements of the job description.
- It is **NOT** simply a test of the injured body part but rather **whether the individual is able to perform the job safely**


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Functional Capacity Evaluations Must


- Realistically test to ensure employee is able to perform all the essential job functions, not just once, but day in and day out, 8 – 12 hours a day, similar to the job
 - Transocean Drilling found that 70 % of those released to full duty without restriction by their treating physician and who successfully "passed" a 4 hour FCE, were **unable to work** for even 1 full 12 hour workday back on the rig.
 - The **non work related injuries therefore became work related injuries.**

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- CWR research indicates that even when
 - companies have access to RTW criteria spelled out in measurable terms so therapist can attest to individual's ability to safely perform the work
 - client's physician give full RTW release
- **18 % of those assessed are unable to return to work at this time**


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The Functional Capacity Evaluation must **NOT** speculate!!!

Federal Courts have ruled that computerized strength testing (such as the Arcon strength testing machine) discriminates against women and that there is no correlation between static pulling and o the ability to dynamically handle weights.

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Functional Capacity Evaluations

To be defensible in a court of law it should:

- Consist of realistic work / job simulated tasks performed in a like manner, similar to the job requirements in frequency, no more strenuous than the job
- Include 8 hours / day for multiple days in succession (wearing steel toed boots important). There is NO research that shows that an individual who has been out in the injury system for a significant time period is able to perform work 8 hours a day, day in and day out, based on a 4 – 6 hour assessment
- Include multiple cross checks to ensure validity / consistency of effort (symptom magnification check)
- Be closely supervised and monitored by on site Occupational Therapy personnel

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Content Areas for FCE

- Initial Interview
 - Injury and diagnostic history
 - Previous medical and rehabilitation history
 - Job Description with physical requirements in measurable terms

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Objective Musculoskeletal Assessment Components

- A/P Range of Motion
- Cervical and Trunk ROM and Mobility
- UE/LE Functional Muscle Strength
- UE/LE Functional Coordination
- Aerobic Fitness Compared to Norms
- Transitional Mobility / gait
- Muscle Length and Flexibility
- Posture
- Grip Strength and Power
- Sensory
- Radicular Signs and Symptom Check
- Stair climbing / carrying
- Ladder climbing / crawling
- Job Specific Dynamic Lifting Abilities
 - Floor to Overhead
 - Floor to Shoulder
 - Floor to Waist
 - Waist to Waist Carry
 - Job specific carrying on stairs
- Job Specific Pulling / Pushing / opening or closing various size valves / levers, pushing / pulling while walking

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Additional Testing Performed Specific to Individual

- Standardized Coordination Testing
- Individual Muscle Strength Test
- Circumferential or Volumetric Measurement
- Multiple Grip Distraction Tests
- B- 200 Isoinertial Back Evaluation

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Distraction Testing

- Putting an objective observation to a subjective complaint
- Putting the client in a position where they do not necessarily know what you are looking for. If you should get the same results because it is essentially the same test but don't – then this sends up a red flag
- Enough red flags and the client may be a symptom magnifier

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Multiple Cross Checks for Validity / Consistency of Effort

- Baseline ROM Compared to Functional ROM
- Baseline Coordination and Standardized Coordination as compared to Functional Coordination
- Maximum Lifting Capacity or Push/Pull Abilities Checked Several "Discrete" Ways

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Validity Cross Checks

- Heart Rate Response to Activity, Reports of Pain, Maximum Effort, etc.
- Waddell Test and Standardized Behavior Question Inventories
- Gait Pattern, Weight Shift, etc during Functional Activities
- Subjective Pain Reports as Compared to Objective Behavior

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Functional Activities

- Realistic job simulation activities that closely resemble the requirements of the job
- Similar to those used in PHA



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FCA/FCE Purpose Continued

- With a job description the test will incorporate all critical job demands so that a conclusive "yes – no" answer be given regarding RTW issues

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Not fit for duty at this time

"While performing a simple musculoskeletal assessment Ms XXX demonstrated that she was experiencing significant pain with left upper extremity manual muscle testing (tearful). I then proceeded to perform several left upper extremity shoulder stability assessments, all of which were positive. These tests included:

- Empty can test: a positive result on this test is indicative of supraspinatus tear or pathology. She was positive.
- Sulcus Test: The sulcus sign is an examination to determine the extent and / or presence of inferior instability of the glenohumeral joint. This was positive.
- The shoulder Apprehension test is also known as the Fowler test or the Job relocation test. The examination is used to assess for shoulder instability. This test was also positive.

Therefore, it is my opinion that Ms XXX is not fit for duty as an Operator C at this time"

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Conclusive Defendable Functional Capacity Evaluation

- Baseline Assessment + Functional Tasks and Activities as Previously Indicated
- 3 – 5 days of 8 hours of realistic simulated work and functional activities
- The results are absolutely defendable plus the client knows he/she has done it within their pain tolerance, not once, but day after day

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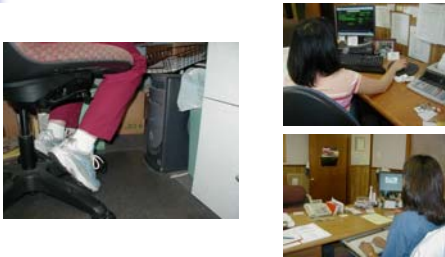
Center for Work Rehabilitation Guarantee

" I may not always like what you have to say but i can always go to the bank with what you tell me!"

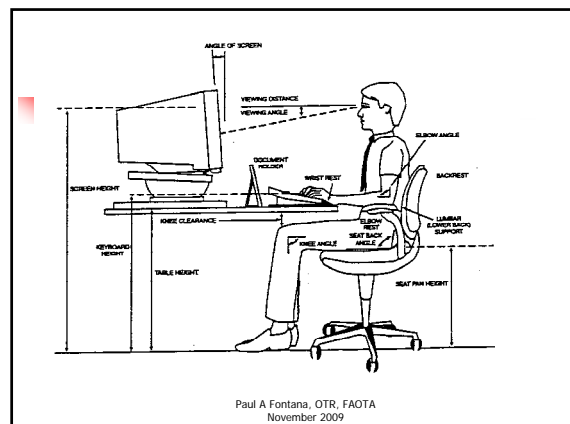
Chris Dautreuil
Claims MGR
Diamond Offshore

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Ergonomics: Office Programs



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Preventing Injuries of the Spine and Extremities: Biomechanics of Lifting and Ergonomics

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Presentation Outline

- Biomechanics of the spine and the degenerative processes
 - Review anatomy, physiology and bio-mechanics of the spine and back compression forces associated with work / play / life activities and it's **consequences**
- **Ergonomics**
 - Changing the job / equipment **eliminates or ameliorates the physiological hazards** that can lead to problems

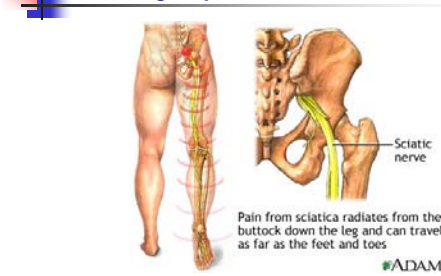
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“Causes” of ergonomic physiological hazards

- **Force** – high sustained forces or high impact forces
- **Repetition** – light forces with high repetition or heavy forces with few repetitions
- **Sustained Poor Postures**
- **Contact Surfaces**
- **Vibration**

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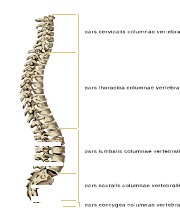
Sciatic Nerve and hip / knee / foot symptoms



Pain from sciatica radiates from the buttock down the leg and can travel as far as the feet and toes

#ADAM
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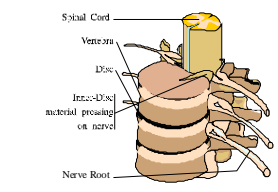
“Good” *normal* posture of spine **Lordotic** Back Posture / Curves



- Cervical
- Thoracic
- Lumbar (Lordotic Curve)
- Coccyx (Tailbone)

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Spinal Structure




- Spinal cord is posterior to the disc
- Nerve roots / peripheral nerves are posterior / lateral to the disc
- Disc: between the vertebra to cushion the vertebra and protect the nerve roots
- Vertebra: bones that protect the spinal cord and give stability to the spine

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Lifting w/ Poor Posture 220 lbs person lifting 100 lbs


- Bending @ waist w/ squat increases back compression forces 15 x object weight + 4 x body weight
- Loss of lordosis (curve) increases disc pressure posteriorly
- **Back compression forces of 2,300 lbs**



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Biomechanical Changes that Occur When Fully Squat / Lift

- When in full squat, Kyphotic low back posterior = increased posterior disc pressure (4 x body weight)
- First 20° of standing all force generated by knees. Don't have strong knees so have to bend over to get quads to work putting all pressure on back
- 220 lbs individual lifting 70 lbs in this position will put roughly **2,000 lbs + back compression force** to start lift.




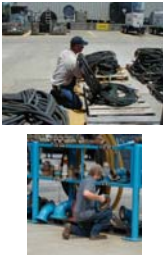
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Correct posture reduces back compression forces to 290 lbs




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Keep the Curve (Lordosis)

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Lifting item out a cargo basket



- Bending over at the waist increases back compression forces 4 x body wt + 15 x object weight
- By stabilizing self with one hand on the basket, hiking opposite hip (this maintains the curve), lifting object results in 100 % body weight + object weight


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Twisting the spine while pulling

- Pulling in the manner shown in top photo can result in torquing of the spine as forces increase or if cable gets stuck
- Pulling the cable like this reduces chance of spinal torque as force increases


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Other areas of my practice

- Expert Witness
 - Cases where I evaluated client (FCE)
 - Cases where I assess job site to determine if there are ergonomic "hazards" in the job that could have cause injury
 - Biomechanical Expert on safe lift operations
- Functional Capacity Evaluations
- Work Conditioning / Work Hardening
- Injury management consultation

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Conclusion

Innovative Occupational Therapy Programs are making a substantial difference in industrial injury prevention and return to work areas

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