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Getting Back to Work

Partnerships Between Occupational Therapy Practitioners and Ergonomists

ANDREW WAITE

Treecutter Jason was spending another average day at work, high up in the branches, when he lost control of his chain saw and cut off a finger. Despite the shock, he made it down to ground level safely, and he was even able to return to work some weeks later. Not even a year later came another, similar accident. Jason lost two more fingers—a disaster in many respects, and not least because he lost his ability to work the job he adored. Or so it first seemed.

Following the second accident, Jason visited the People's Injury Network Northwest, where he met Judy Silva, OTR/L, who created splints and led him through activity-based, work-simulated rehabilitation regimens to help him re-learn how to use his injured hand. It was Jason's work at the clinic with Silva, and then by extension, an ergonomist, that eventually put him back in the harness and above the ground, doing the dangerous but important work that he loved.

UNDERSTANDING THE JOB

The People's Injury Network is in an old warehouse, so it has high ceilings that allowed Jason, under Silva's supervision, to hook up rock climbing equipment.

"He brought his gear in, so we were able to simulate climbing a tree," Silva says. "He got to the point where he was skilled enough so he could support himself completely, but my big concern was operating the power saw while supported by ropes in the trees."

One aspect of the occupational therapy evaluation is to provide the objective data. In Jason's case, Silva identified restriction with range of motion and limited finger length, which directly affected his grasping tolerance. Silva tried to create adaptive equipment to help improve his grasp, but the material available at the clinic would not withstand the demands of a tree cutter. The vocational resource center created the job analyses, which Silva used to create a treatment plan. Silva worked closely with the vocational resource center throughout the program, and when concerns arose, further specialists, like an ergonomist, were brought in.

The vocational counselor on the claim recommended bringing in Ian Chong, a certified professional ergonomist (CPE). Occupational therapists note that there could be some overlap with ergonomists when making adaptations to the job site and analyzing an employee's work tasks. But although occupational therapists are experts in providing adaptations to help clients engage in meaningful occupations, sometimes the technological or technical skill required for a particular client's desired activities call for the help of an ergonomist.

"My job was to train him to get back to work after maximum medical improvement provided by the therapists," says Chong. "So we watched him and he explained what he could and couldn't do. I had to analyze how we could get him doing what he needed to do by getting the right equipment."

Chong had detailed conversations with Jason about the many small steps that make up a tree climber's job. Then he and Jason paged through a catalogue of tree climbing paraphernalia. If needed, Chong has the ability as a CPE to adapt equipment so that it fits the client. But in this case, Chong saw that there were already items on the market—like a controlled descender and an impact block—that could help Jason climb trees even with amputated fingers.

The descender, for instance, allowed Jason to drop from a tree without having to manipulate the climbing rope with his hands.

As a consultant, Chong is responsible for securing his own funding. In this case, he was able to secure $5,000 for Jason through the Washington State Department of Labor and Industries.

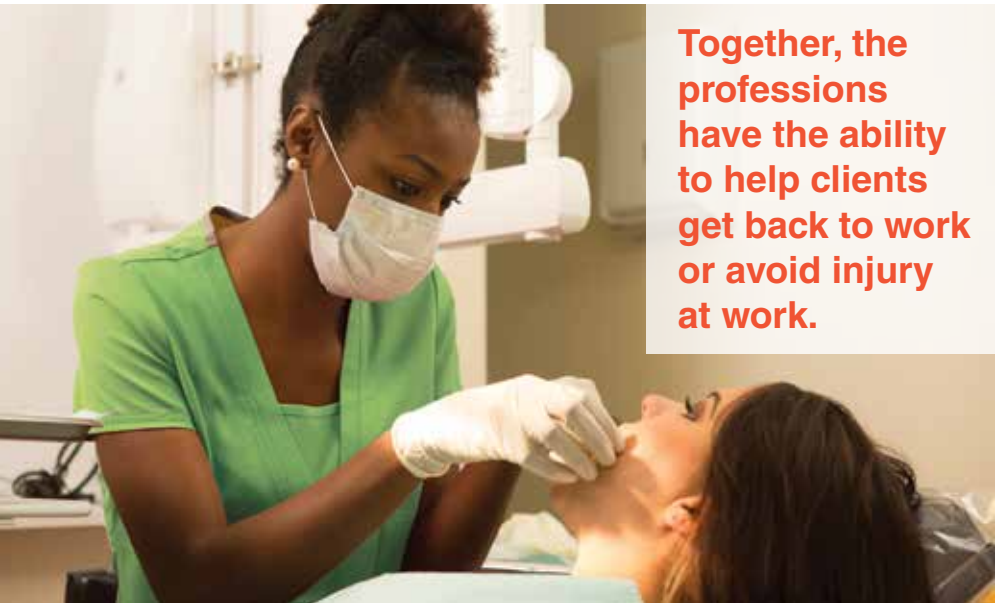
"I was able to help [Jason] understand what he needed because I could look at it his job objectively. Stuff he would never think about I would research and say, 'Wouldn't this work for that?'" Chong says.

As a result, Jason is back on high.

"This guy was born to be a tree climber," Chong says.

PARTNERING WITH ERGONOMISTS

"Once it starts getting into the dynamic of high-level equipment or modifications to equipment that cannot be made in the clinic, that's when an ergonomist is a big help," Silva says. "[For Jason], we made a hook to help him hold onto his saw, but it was clear that once he was climbing, a



Together, the professions have the ability to help clients get back to work or avoid injury at work.

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tree the hook wasn't going to be strong enough. We knew he needed something stronger that we couldn't provide. Or the fact that he needed special pants—pants with metal sheeting to prevent him from cutting off his leg." If the injured worker cannot demonstrate safely performing his job with modification, the occupational therapist will inform all parties on the claim that the job is not feasible and the client will most likely continue working with vocational services.

The tree climber example is a nice representation of the symbiotic relationship between occupational therapy practitioners and ergonomists. Together, the professions have the ability to help clients get back to work or avoid injury at work, whether the workplace is up a tree, under a bridge, down in a mine, or in whatever other unique setting one can imagine.

OCCUPATIONAL THERAPY

Martha Sanders, PhD, MSOSH, OTR/L, CPE, does a lot of consultation work, specifically helping clients function despite carpal tunnel syndrome. She has worked with many dental hygienists since the 1990s.

Just by addressing the tasks of dental hygienstry, Sanders can see the risks of the awkward posture, length of time spent standing, and head and neck positions. She was also worried about the vibrations of the tools.

"To examine your mouth, the hygienist has to flex his or her neck and then rotate the head. [But] if you bend your neck forward, your shoulders also protract or bend forward. Now you have your elbows bent and your wrist flexed and your fingers are holding onto this really thin instrument in which the finger flexors have to develop a lot of force, and then the wrists are flexing and extending repetitively," Sanders says. "Once I observe [clients], their posture and work demands, then I can find out where they have aches and pains."

After such an assessment, Sanders can offer solutions.

"One simple thing that an occupational therapist can do in a dentist's office is raise up the patient chair so the hygienist doesn't have to bend over as far. Now the hygienist's head is more upright. We can also use magnifying glasses so the hygienist doesn't have to bend forward as much, which leads to better posture," Sanders says.

Sanders can also recommend using instruments with thicker handles that are lighter and easier to grip.

But even after making these changes, Sanders said some of her clients in one particular office were still experiencing carpal tunnel pain.

"So I asked them about their typical days. Not just what they do at work but what they do when they go home," Sanders says. "And a number of the hygienists said they are master quilters, meaning they quilt for 4 hours a day."

No health professional had ever asked these hygienists about their leisure activities.

"When you quilt, you are basically using the same muscle groups as you would for oral examinations, meaning

they were using the same muscle groups for about 12 hours a day," Sanders says. "I told them they might have to make a tough choice if they wanted to get rid of the pain."

Sanders thought her clients would give up quilting.

"But most, who were later in their careers, decided to quit dental hygiene and focus on being master quilters," she remembers with a chuckle.

Asking questions that factor in all of the activities, not just work-related tasks, is one of the true specialties occupational therapists bring to worksite assessments.

"The person–environment–occupation model is really how I practice ergonomics," says Karen Jacobs, EdD, OTR/L, CPE, FAOTA, who has assessed workers in medical offices and dealt with posture problems similar to the ones Sanders described. "Many times I ask the client to do a 1-week activity log so I can see how they are spending their time and can ask about tasks that are causing them to feel pain or discomfort that might be affecting their ability to work."

In addition to seeing the whole picture, occupational therapy practitioners are also able to help inspire clients.

"I think of OTs as being the experts in motivation," says Wendy Kenzell, MS, OTR/L, who works at a food distribution warehouse helping employees avoid and cope with injury.

"We understand how to link that purposeful meaning. It is part of the OT training to be client centered and really look at how to develop interventions that motivate the client."

Occupational therapists also understand the importance of early intervention.

In fact, Theresa Schmotzer, OTR/L, was recently granted a patent for her company's (www.remedy-pacific.com/) STARStretch® program, which is a system for preventing injuries in work environments that require repetitive movements (such as distribution centers).

The STARStrech program guides an assessor through an ergonomic evaluation of the job, which leads to recommendations.

"So, for instance, I make adjustments so [clients] are not reaching above shoulder level repetitively, or I suggest that they move their entire body into the work area to prevent bending their wrist," Schmotzer says. "I always teach people joint preservation techniques so they are using larger joints. From there I will do a range-of-motion assessment, which determines the muscle groups that are being overused or underused. Finally, based on all of the assessment material gathered, I will devise an injury prevention program that compensates for whatever shortcomings were not remediated in the design of the job task."

When evaluating a worksite and possible injuries facing workers, occupational therapists also bring knowledge of disease progression and how that might affect a person's ability.

"OT has way more knowledge about disease, disease progression, injury, injury progression, the psychological impact of the injury, and the potential impact of others' reactions to that person when they come back, whereas the ergonomist doesn't really study injury in that way," says Valerie Rice, PhD, CPE, OTR/L, FAOTA, FHFES, a chief colonel in the Army Research Laboratory at Fort Sam Houston in San Antonio, Texas.

But although occupational therapy clearly helps in the workplace by reorienting the client back into life, ergonomists offer their own set of skills and expertise.

CERTIFIED PROFESSIONAL ERGONOMISTS

The Board of Certified Professional Ergonomists (BCPE) describes ergonomic expertise as recognizing the integrated nature of ergonomics, with a focus on people, in a way that can adapt the environment to fit the person.

Carol Stuart-Buttle, CPE, the executive director of BCPE, says ergonomists focus on designing work system-wide for the people who are performing the jobs, whether or not injury is present.

"They assess for the population as a whole and have knowledge about design terms and dimensions relating to the entire system." Even if addressing one person's problem, that individual is part of a work system and often working or sharing a job with others.

The CPE certification requires a bachelor's degree and academic coursework covering BCPE competencies, 3 years' full-time equivalent of professional practice in human factors/ergonomics,

work examples, and passing a written examination. But what does this mean for occupational therapy collaborating with ergonomists in practice?

"Let's say you walk into a factory and as an OT you think, 'Hey, this is very poorly designed, and I need to change this whole factory so people don't get injured,'" says Kenzell, an occupational therapist. "Certainly, we have that knowledge to know what needs to be changed. However, the employer would ask you for a cost analysis. A cost analysis requires the whole scope of understanding risk, analyzing [Occupational Safety and Health Administration] reports, and documenting how many injuries have occurred and how many injuries are expected to occur in the future. There are all these different things going through cost analysis that I don't have the skills for and quite frankly I am not interested in."

The ergonomist is better equipped to recommend system-wide changes to a workplace.

"If an OT has a client who has a missing limb, the therapist is going to teach the individual how to use a new limb. And maybe we will do it by playing pool or with other activities. We will use a variety of things that the person is interested in to get them as functional as we can," says Rice. "In human factors ergonomics or engineering, you are really working to make whatever the job or the task is to be as easily used by the most number of people intuitively and without injury."

WORKING TOGETHER TO HELP CLIENTS

Dave Swanson, COTA, recently had several clients come into his clinic complaining of back and shoulder pain that resulted from construction work under a major highway in Seattle.

"Of course you are interviewing and talking about setting up work simulation tasks and building up tolerance to that kind of thing," Swanson says.

It soon became apparent that operating the 15-pound chipper hammer the job required was contributing to the problem.

So Swanson was able to get the clients to the highest level of functioning, but when it came time to talk about returning to work, it was clear that major equipment adaptations were needed.

That led to Chong, who was referred by the vocational counselor in Swanson's clinic. Chong designed a pneumatic support for the chipper. The workers no longer had to hold it up, and it was adjustable to heights and terrain so clients could use it to return to the jobs they knew how to do.

"Occupational therapists and ergonomists depend on each other. One isn't stealing something from the other," says Rice. "Working together is absolutely the best way to help the client." ■

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FOR MORE INFORMATION

Work & Industry Special Interest Section *Quarterly* Newsletter
www1.aota.org/sis_qtr/index.asp?ID=W

Occupational Therapy and Home Modifications: Promoting Safety and Supporting Participation
By M. Christenson & C. Chase, 2011. Bethesda, MD: AOTA Press. ($259 for members, $359 for nonmembers. To order, call toll free 877-404-AOTA or shop online at http://store.aota.org and enter order #3029.)

Occupational Therapy Practice Guidelines for Individuals With Work-Related Injuries and Illnesses
By V. Kaskutas & J. Snodgrass 2009. Bethesda, MD: AOTA Press. ($59 members, $84 for nonmembers. To order, call toll free 877-404-AOTA or shop online at http://store.aota.org and enter order #2213.)

Task Analysis: An Individual and Population Approach, 3rd Edition
By S. A. Wilson & G. Landry, 2014. Bethesda, MD: AOTA Press. ($49 for members, $69 for nonmembers. To order, call toll free 877-404-AOTA or shop online at http://store.aota.org and enter order #900354.)

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