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Using Patient's Movement Patterns to Reduce and Prevent Sports Injuries

The physical therapy and rehabilitation fields are confronted with a grim statistic: the #1 risk factor for a future injury is a previous injury. This statistic suggests that by the time a patient walks through the door of a clinic, they are already primed for future injuries, regardless of the care they may receive. The #2 and #3 risk factors are movement asymmetry and motor control, respectively.

Gray Cook, MSPT, OCS, CSCS, founder of Functional Movement Systems, believes that these other risk factors can be explored and treated in order to better heal injured patients and to prevent injuries before they happen.

"The risk factors for future injuries tell us that the traditional model for restoration after musculoskeletal injuries is either incomplete, or a person is always permanently altered by every injury—and I don't believe that," says Cook. "Rather than working backwards from an injury, we should be looking at patients' movement patterns, noticing signs before we are forced to deal with symptoms."

This approach forms the basis of Functional Movement Systems. In 1996, Cook and his colleagues were nationally recognized as leaders in the functional exercise field. But Cook noticed that there were inconsistencies, most notably that there was not a universally agreed upon definition for what they meant by "functional."

"This revelation really set me back," says Cook. "With the advent of the Body Mass Index (BMI), the field of nutrition was able to dramatically improve. The standard gauge increased accountability for the profession, and paved the way for better communication with the patient. The physical therapy field lacked this standard gauge. In order for the field to improve, we needed to establish a minimum baseline."

To this end, Cook developed a movement screen based on growth and development. He focused on the way that we learn to move, and he noticed that all of our motion behaviors are built one upon the other, creating a foundation of movement.

MOVEMENT-Continued on Page 2

2 EMPLOYEE SPOTLIGHT

Our Employee Spotlight feature provides a look at the people who are on the other end of the products and services you use in your practice.

CAROLE COLLISON

Carole Collison, is part of the administrative team at JTECH. She has had over 35 years of experience in the accounting field—at private companies, CPA firms, and in higher education—and she loves this aspect of her position.

When she isn't crunching the numbers at JTECH, Carole spends her time golfing, hiking, and watching football, but her favorite activity is spending time with her family and friends. Carole enjoys traveling and would love to return to Japan, where she lived for three years—though this time she might forgo the motorcycle.

MOVEMENT-Continued from Page 1

"By the age of three, children can squat, climb, run, reach, etc., but these are not wholly independent activities. The precursor to running is walking; the precursor to walking is squatting; the precursor to squatting is kneeling; and so forth. I came upon the question: is it ever okay to lose this foundation?"

In the modern formulation, sports are increasingly targeting specific motions at the expense of others. But if these other motions are contributing to an overall pattern of motion that includes any dysfunctional elements, the likelihood of poor performance and injury increases.

Cook started his own clinic and developed two different movement screens: the Selective Functional Movement Assessment (SFMA), for patients experiencing pain; and the Functional Movement Screen (FMS), which analyzes movement patterns of any individual to determine their preparedness for specific activities and locate any dysfunction in their movement.

Importantly, the FMS is never wholly separated from the SFMA. Once patients' pain is alleviated, they are given an FMS as part of the discharge process. This helps pinpoint any potential dysfunction in the movement pattern, which the clinician can then correct, limiting the potential for future injuries and boosting performance capabilities. In other words, incorporating the FMS into rehabilitation allows the clinician and patient to tackle the top three risk factors for a future injury.

"The FMS also provides a functional baseline from which to evaluate progress and performance," says Cook. "Under the standard model of care, if you go to multiple physical therapists with a knee injury—or even the same physical therapist on different days of the week—they are going to treat the injury differently. The ER, OR, paramedics, and many other professions all have standard operating procedures that ensure that patients are getting the best and most accurate care from each practitioner every day of the week."

The baseline helps provide the clinicians with a checklist to ensure they are providing the best care possible, but it also provides the patient with a clearer understanding of the diagnoses, treatment plan, and their progress.

Objective tools also play a crucial and invaluable role in this process, helping a clinician measure any dysfunction or deficit that they find. Cook sees the ability to objectively and accurately quantify the impairments and deficits as a must for the rehabilitation profession.

"In our capacity as medical professionals, we should never be saying the word 'weakness' without being able to measure it," says Cook. "We should not be mentioning problems if we can't point to a number that was gained through accurate and reliable testing."

Measuring function using objective tools and software bolsters the accountability and the improved communicability of the FMS, but Cook stresses the need to understand how to

MOVEMENT-Continued on Page 4

WEBINARS: Take part in one of our webinars to find out what to expect from using JTECH's software and products, as well as understand the measurements and reports that our software provides. Conducted by a JTECH Certified Trainer, these $40 trainings will guide you through sessions focused on using JTECH's software and devices. To receive more information or to sign up for a JTECH Web Training, please visit portals.jtechmedical.com, or contact JTECH Customer Service at 1-800-985-8324, option #4.

UPCOMING WEBINARS:

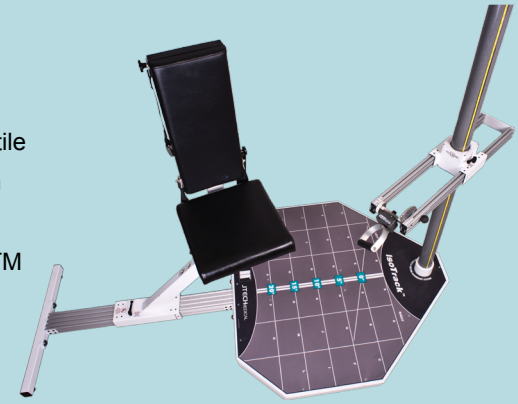
Thursday, April 10 – Grip and Pinch

Thursday, April 17 – Inclinometry

Thursday, April 24 – Muscle Testing

Wednesday, April 30 – Static Strength

ISOTRACK PRO



For clinics that work with patients with above-average strength, or who want a more complete and robust static strength testing solution, JTECH Medical offers the IsoTrack ProTM. The IsoTrack Pro is a versatile platform equipped with a multi-vector alignment system that seamlessly integrates with our state-of-the-art, wireless force gauge, and intuitive, powerful Tracker 5TM Software.

The IsoTrack Pro excels at testing muscles in isolation by incorporating a multi-vector alignment system. The wireless force gauge is situated on an arm, which can be moved up and down and rotated around a pole, and can be retracted or extended, offering positioning for an infinite number of testing situations. The mounted load cell allows for greater force measurements, and eliminates tester restrictions and fatigue. The precise placement of the load cell also increases test accuracy and decreases joint stress for the patient.

The grid design of the platform provides precise and reproducible testing environments that are easy to explain to patients. An optional chair for the IsoTrack Pro enhances patient comfort, expands testing capabilities, and can be moved to the side for lift testing.

In order to facilitate a variety of testing situations, the gauge is able to record both push and pull forces. The load cell is threaded in order to easily install accessories, which allows you to quickly swap them during a test sequence that includes different movements and muscle groups. The Static Strength Gauge can also be removed from the IsoTrack Pro in order to adjust to any testing situation you may encounter.

JTECH Medical's wireless Static Strength Gauge is designed with cutting-edge technology that reduces interference and ensures accurate data transmission. Each device is coded to speak directly to its designated receiver across an array of possible channels, and the receiver has the ability to automatically select the channel with the least amount of interference. This combination ensures that the device and the receiver achieve the best line of communication and send only the most reliable information. The Static Strength Gauge is powered by a lithium-polymer battery, and transitions into a "low-power" state when not in use to conserve battery life. This allows more time testing with the device, and less time with it on the charger.

The Tracker 5 Software tracks and records results in real-time, and allows you to produce comprehensive and detailed reports with a few clicks of the mouse, saving time, and reducing transcription errors. The software provides a comprehensive list of standardized tests, protocols for NIOSH and push/pull tests, as well as the ability to create custom tests. The software also calculates strength maximums and consistency of effort, and many tests include comparisons to published normative data.

For more information about the IsoTrack Pro, please visit us online at www.jtechmedical.com, or contact your Regional Sales Representative at 1-800-985-8324.

HOT TIP

Tracker™ 5 Attachments

The Tracker™ 5 Software includes an attachment option, which allows you to easily access commonly-used forms or reference documents that might be needed for a physical or functional evaluation, without having to leave the Tracker software.

The Attachment button is located along the top system bar. Clicking the button will open a new window where you can manage and open your attachments. Clicking the plus button allows you to attach new files, and the minus allows you to delete them (note: this will only delete the file link within the Tracker software, and will not delete the file from your computer). With an attachment selected, the button in the top right of the form will be clickable, and will open the selected file.

TRACKER™ VERSION 5 SOFTWARE

MOVEMENT-Continued from Page 2

use the devices correctly in order to get useful and meaningful data.

"Lots of people are equipment junkies or movement gurus, but the real value lies in effectively combining the two," says Cook. "The entry point of our examination is a patient's movement behaviors, but in the end, we need to be able to measure and track problem areas and quantify the movement deficit. If there is a measurable impairment, we can treat this. If the impairment is fixed, but problems remain, then we know it is a problem with processing, and we can focus on improving a patient's movement behaviors."

An understanding of correct movement and an ability to locate dysfunction is an important factor in correctly utilizing objective results. Cook and his colleagues offer workshops to practitioners who are interested in incorporating these practices into their own treatment models.

"We separate the workshops into the SFMA and FMS," says Cook. "The SFMA is geared towards the clinical, whereas the FMS is more broadly applicable to the fitness, tactical, and sports fields. We encourage everyone to be trained in both, though it is not as pressing for some fields. If personal trainers are able to perform an FMS and a client fails, they can refer them to a medical professional. But clinicians need to be trained in both in order to treat injuries effectively, and then identify and correct movement dysfunction to prevent future injuries."

Cook sees an incredibly positive future in the rehabilitation and sports medicine fields if they take advantage of the preventative aspect of the FMS and the baseline minimums it provides. He cites dentistry as an example of the way in which a field can alter the wellness landscape through preventative care.

"Dentists were able to get insurance companies to pay for routine cleanings, and the overall dental health of the population dramatically improved," says Cook. "But is it because of the cleanings themselves that we have dramatically fewer root canals? Or is there something about the interaction with a health care professional that provides the opportunity to locate potential problems and fix them before they occur? A majority of our inconveniences—missed work and activities—come not from illness, but from musculoskeletal injuries. This statistic could be dramatically altered if everybody had a yearly physical with a PT which was aimed at locating and correcting movement dysfunction based upon established baselines."

For more information about Gray Cook and Functional Movement Systems, visit www.functionalmovement.com. Cook's book, Movement, is available in a variety of formats from Amazon.com. For more information about objective functional tools, visit www.jtechmedical.com.

UPCOMING/ CURRENT EVENTS

Functional Testing, Evaluation, and Assessment Hands-on Training in Chicago, Illinois. Friday, May 2nd, 2014.

This one-day seminar provides hands-on training with functional tools and assessments. Gain a solid foundation and increase your understanding of objective functional testing and why it should be used.

Functional Capacity Evaluation (FCE) Certification in Chicago, Illinois. Friday, May 2nd through Sunday, May 4th, 2014.

JTECH Medical's FCE Certification seminar provides practitioners with expert training in the process, application, and clinical decision making that are crucial to every FCE. Participants may seek certification upon completion.

Contact JTECH at 1-800-985-8324 for more information.

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