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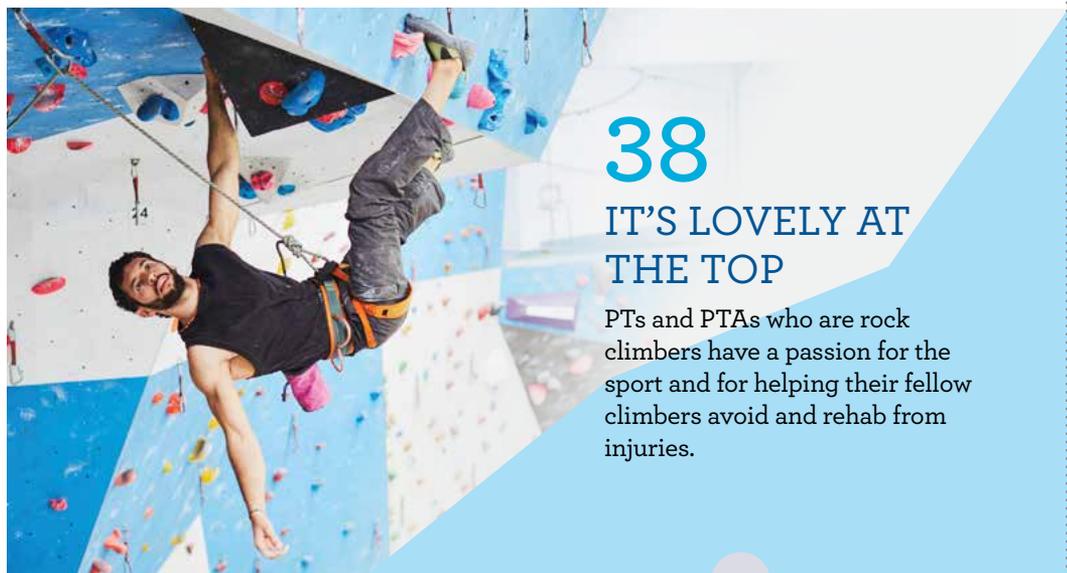
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20 AI: HUGE POTENTIAL, OR AN IMPENETRABLE BLACK BOX?

Artificial intelligence offers many benefits to health care professionals — and likely will be a key component of future practice — but it’s not without its drawbacks.



38 IT'S LOVELY AT THE TOP

PTs and PTAs who are rock climbers have a passion for the sport and for helping their fellow climbers avoid and rehab from injuries.

28 BEHAVIORAL CHANGE: MOTIVATION COMES FROM WITHIN

How can PTs apply change theory and change behavior to patients and clients to help improve outcomes?



DEPARTMENTS

4 QUOTED

6 VIEWPOINTS

- + Serving Veterans Through Community Programs
- + Financial Strategies for Recent Graduates
- + More

50 PROFESSIONAL PULSE

- + Health Care Headlines
- + APTA Leading the Way
- + PTJ's Editor's Choice
- + Student Focus
- + APTA Member Value

56 MARKETPLACE

- + Career Opportunities & Continuing Education
- + Products

57 ADVERTISER INDEX

64 PT IN MOTION ASKS...

COLUMNS

10 COMPLIANCE MATTERS

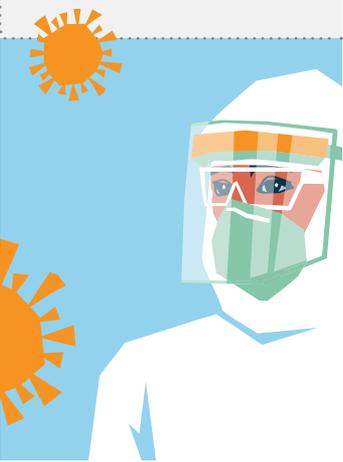
An update on the Physical Therapy Compact and multistate licensure privileges.

16 ETHICS IN PRACTICE

Does the PT have a license to delegate?

58 DEFINING MOMENT

Why an outpatient clinic remained open during the pandemic.



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— IRA GORMAN, PT, PHD, MSPH,
IN “BEHAVIORAL CHANGE: MOTIVATION
COMES FROM WITHIN” (PAGE 28)



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PT in Motion welcomes your opinions. We will consider letters, email, and social media posts that relate to specific articles in the magazine and those of general interest to the physical therapy profession.

Online Comments

Compliance Matters: Serving Veterans Through Community Programs

November 2019

The column made a great point when it explained that veterans should have access to high-quality health care services. These men and women put their lives on the line to protect our country and our homes. They should be taken care of when they need help with health care services.

Henry Killingsworth



Financial Strategies for Recent Graduates

April 2020

The article is a wonderful summary of thoughts as well as practice backgrounds. From a purely financial approach, we as PTs need to operate at the highest levels of our practice acts, integrate deeply in the health care platform, and bring value with consistent outcomes to our patients. Only then will we have strong arguments for increased reimbursements and professional scope. As a private practice owner, I'm convinced that cash-based models undermine the reputation of our profession within the medical community. In addition to marketing directly to patients, we should be stepping up our game in professional circles – becoming essential to the successful outcome in patient care across the continuum rather than prompting the comment, "Oh, I tried physical therapy and it didn't work."

Matt Calendrillo PT, DPT



Defining Moment: When Life Throws You Curves

April 2020

I am excited to have a resource to explore regarding kyphosis. My mom is 86 and quite kyphotic, and I am heading in the same direction. Hats off to you for the great work you do. And congratulations on your impressive athletic accomplishments. How fortunate your parents are to have a skilled interventionist who "gets it."

Gina M. Laura



Thank you for this very inspiring story!

Terri Night

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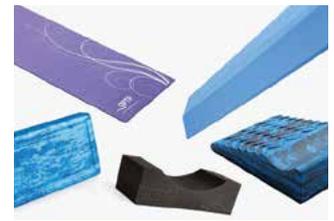
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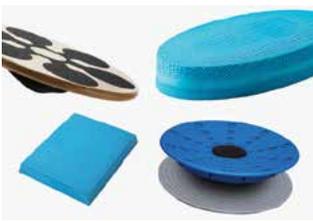
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Online Comments

Retirement Planning for PTs and PTAs

April 2020

I'm a 66-year-old "not ready to retire" physical therapist. My retirement plan is to practice until I'm 70 years old. At 60, in 2015 I transitioned from a permanent, full-time, 40-hour-per-week position to a part-time interim traveling position. Over the past four years, I have implemented most of the article's suggestions related to my age group.

Practicing as an interim traveling physical therapist has been rewarding and is ideal during the transition to full retirement. I provide fill-in coverage to my colleagues in critical-access hospitals in a rural state. The problem I have encountered in my plan is keeping up with APTA membership and section dues, licensing fees (I'm licensed in three states), and continuing education costs (with meals, lodging, and traveling). E-courses help some but only cover half of my acceptable CEU requirements. My annual income from providing services has been \$20,000 or less. As I reduce the hours I practice, my annual income has changed accordingly.

As pointed out in this article, I'm at a point where I must choose or make changes to cut costs to reach my retirement goal. Career, family, and an individual's health lead to a balancing act. Overall, this article and particularly the Harris Poll results confirm that I have been on the right path in my pursuit of retirement. I know I will continue to practice and be there for my rural colleagues until I fully retire. But, with what is now occurring in our world, I might be asked to hold off from full retirement as our world recovers.

Honani Polequaptewa

Reckoning With Reentry

April 2020

I thoroughly enjoyed this article, and it was very timely, as I am engaged in the long slog back into the physical therapy profession after 20 years of being a full-time mom of five (and getting involved in other pursuits). I earned my DPT last fall and am now seeking a mentor for reeducation on the clinical side. I wish I had read this article before I exited the profession. I kept my Massachusetts license current but did no continuing education. I realize now what a mistake that was! Like the women in the article, I was eventually drawn back to our great and rewarding profession.

Suzanne Bohn



Physical Therapy by Design

March 2020

I did not see any information here about the number of therapists who will be working in the facility. I think we are missing this very important fact and allowing some clinics to be overcrowded. Recently I read a blog post discussing revenue per square foot. It mentioned a crazy \$550/sf in revenue.

Here are my thoughts. We should discuss and establish (especially now, during and after the COVID-19 pandemic) how many square feet per therapist a clinic should have. When I was opening my clinic in 1999, I read an article suggesting 600-800 square feet for one therapist. It should be imperative for APTA and CMS to establish guidelines. I see a corporate clinic with therapists fighting for a table or even a chair.

Let's do simple math. Four PTs x \$200,000 = \$800,000. If we take the aforementioned 600 sf and multiple by 4 to get 2,400 square feet, and calculate revenue per square foot using \$800,000, we arrive at \$333/sf. That sounds much more reasonable.

John

Improving the Lives of People With Dementia

March 2018

I teach in a DPT program and was looking for relevant physical therapy information to add to my teaching content for dementia, and this article is perfect! We have a ton of research articles, but bringing this information to life and hearing how clinicians apply the information is so important. Thank you!

Tracy Wright

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Compact but Growing

An increasing number of states are joining the Physical Therapy Compact. Do you want to be able to provide physical therapy services in more than one state? Here's what you should know to get started.



Daniel Markels is the manager of state affairs at APTA. This piece is based largely on a previous column on the subject by his predecessor, Angela Shuman, MPA, to which then-State Affairs Specialist Isabella DeBono contributed.

The ever-increasing mobility of the American workforce, the need for better access to physical therapy in underserved areas, and the rise of telehealth prompted development of the Physical Therapy Compact, which gives PTs and PTAs the ability to provide services across the jurisdictional boundaries of participating states.

While travel, activity, and other restrictions related to the COVID-19 pandemic have dramatically limited interstate mobility for now, the PT Compact will again facilitate PTs' and PTAs' ability to work in more than one state as restrictions are lifted.

How It Works

The PT Compact offers a path for PTs and PTAs to become authorized to provide services in multiple states while holding a single state license. Participation is optional and occurs on two

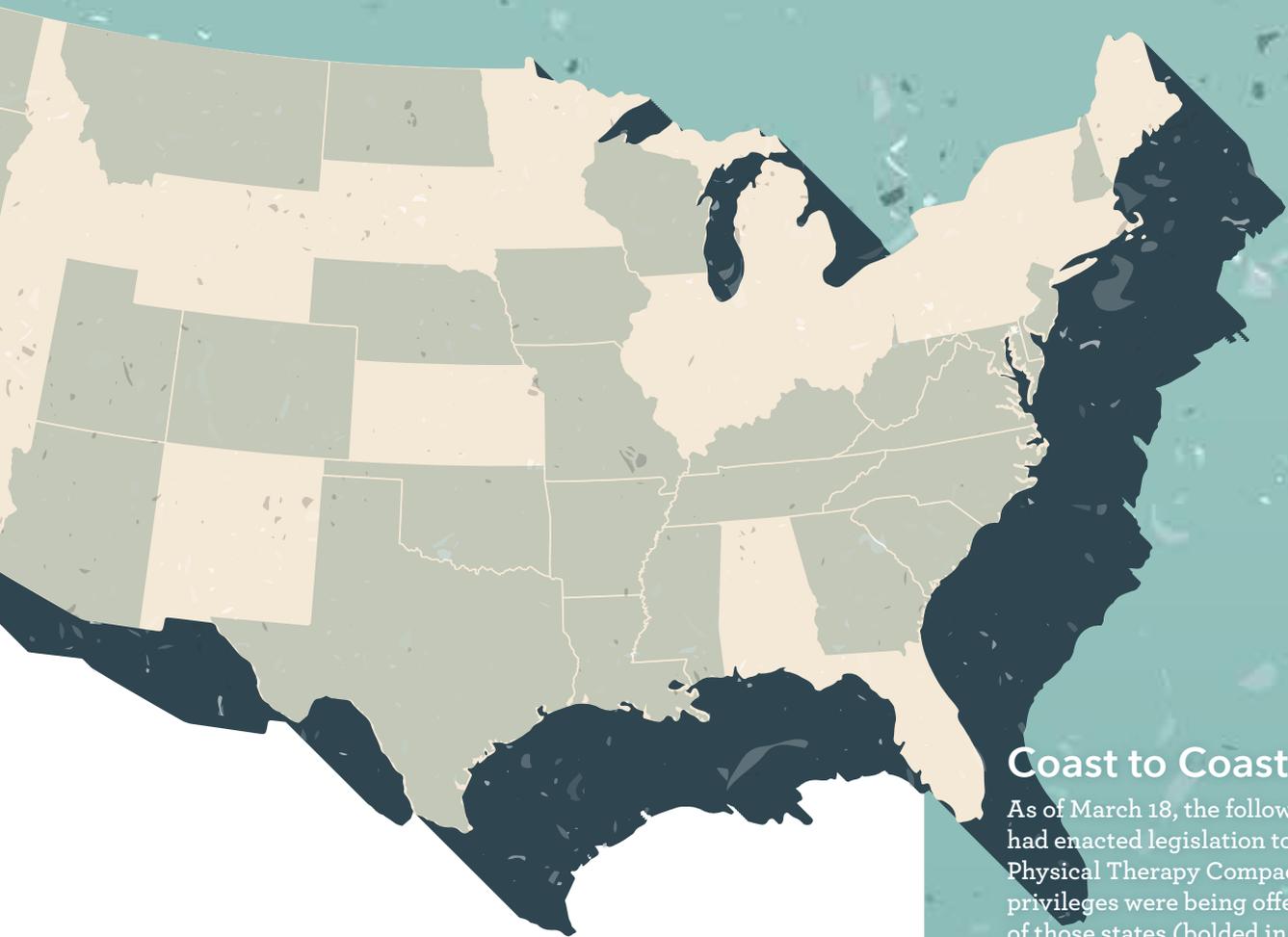
levels: states and individual licensees.

To participate, a state must opt in through the state legislative process, with lawmakers drafting and the governor approving model compact legislation. To be eligible for participation, states must require that licensure applicants pass a national exam and undergo an FBI background check. States also must require licensees to complete continuing competence/education for licensure renewal

and must provide licensee data to the Physical Therapy Compact Commission.

Individual PTs and PTAs who reside and hold a license in a participating state can obtain a "compact privilege" to practice or work in other participating states as long as they meet these criteria:

- ▶ They hold a license in their state of primary residence and that state is an active member of the PT Compact. The compact calls this the "home state." The rules of the PTCC — which were established to implement and oversee the compact — define the home state as "a person's true, fixed, and permanent home." It's the place where the PT or PTA "intends to remain indefinitely, and to which the person expects to return if absent without intending to establish a new domicile elsewhere."



Coast to Coast

As of March 18, the following 27 states had enacted legislation to join the Physical Therapy Compact. Compact privileges were being offered in 20 of those states (bolded in list) and were pending in the others. (Go to ptcompact.org for up-to-the-minute information.)

The compact affords active-duty members of the military and their spouses flexibility in determining their home state. They can cite their home state as their home of record, permanent change of station, or state of current residence.

- They have no encumbrances on any license and no disciplinary actions taken within the previous two years.
- They pass a test on their knowledge of the laws and regulations of the state or states in which they're seeking compact privileges (known as "remote states"), if the remote state or states require it.

- They pay \$45 to the PTCC for each state compact privilege, plus any fee charged by the state(s), which may vary.

Licenses meeting these criteria can seek compact privileges through the PTCC website at ptcompact.org. The PTCC, in addition to establishing the rules of the compact, issues compact privileges on behalf of participating states. Each member state is represented by a delegate on the PTCC. Both APTA and the Federation of State Boards of Physical Therapy have nonvoting representation.

- **Arizona**
- **Arkansas**
- **Colorado**
- Delaware
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- **Oregon**
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- **Texas**
- **Utah**
- **Virginia**
- **Washington**
- **West Virginia**
- Wisconsin

The COVID-19 pandemic highlights the vital importance of being able to quickly mobilize health care services where they are most needed. For the latest on the changing situation and its effects on the physical therapy profession and the patients and clients it serves, go to apta.org/coronavirus.

Compliance Matters

Initial Licensure Doesn't Change

The compact doesn't change the process for obtaining an initial license after graduation from an entry-level PT or PTA education program, or for foreign-educated PTs and PTA to seek their initial state license in the United States.

New graduates still must submit an application and evidence of having completed an accredited entry-level DPT or PTA education program, must pass the applicable National Physical Therapy Exam, and must meet all other state-specific requirements in their home state.

Individuals seeking their initial license in a compact-participating state must undergo a background check whether or not they are seeking compact privileges. (Nonparticipating states may or may not require background checks.)

Foreign-educated PTs and PTAs seeking their first U.S. state license still must complete the licensure process required by that state. Once they hold a license in their home state, they can apply for compact privileges in participating states.

The compact also does not change scope of practice in any state. PTs and PTAs delivering physical therapist services in remote states under a compact

privilege must function within the laws and rules of the remote state in which the patient is located.

Advantages

While PTs and PTAs in compact-participating states retain the option of going through the traditional licensure process to practice beyond their home state, obtaining a compact privilege holds some advantages over traditional licensure in two or more states.

➤ **Getting a compact privilege is much faster and easier than is going through a state's traditional licensure process.** Under the current state licensure system, applying for a license in another state involves many steps and lots of documentation, which can take considerable time to compile and submit. Test scores, transcripts, and validation of holding a current state license all must be submitted, along with a separate application to each state in which the individual wants to become licensed. It can take weeks or months for all of this to be processed and a license to be issued.

In contrast, a licensee in a compact-participating state can simply visit ptcompact.org, complete the online application process for compact privileges in any or all other compact-participating states, and pay the required fees. The system uses licensee data submitted to the PTCC by member states to determine a licensee's eligibility for compact privileges. Once that online process has been completed,

the individual is immediately issued compact privileges in the selected state or states.

➤ **Compact privileges require only one set of continuing education requirements.** Whether a licensee holds compact privileges in a single state or 20, the only set of continuing education requirements he or she must meet for renewal are those required for the home state license.

➤ **Compact privilege renewal is tied to the home state license.** Compact privileges expire along with expiration of the home state license, so licensees need not keep track of different renewal dates for different states. There's only one renewal date to remember.

➤ **Gaining compact privileges typically is cheaper than is going through a state's traditional licensure process.** While compact privilege fees vary by state, on average the fees are much lower than are the license fees for the same state.

Compact Privilege Versus License

While obtaining a compact privilege has its pluses, if you live in a compact-participating state and are planning to move and change your primary state of residence to another compact state in the near future, you might consider going through the licensure process in the state to which you are moving rather than seeking a compact privilege. Again, eligibility for



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Compliance Matters

a compact privilege is tied to your state of primary residence. This means that when you move to another compact state, you will retain eligibility for a compact privilege, but if you make that state your new primary residence you must get a regular license from that state in order to practice or work, and get compact privileges in other remote states in which you choose to practice.

Let's look at a few different scenarios involving these types of decisions.

- Mary is a PT who resides in Memphis and holds a Tennessee license. She works for a home health agency that operates in both that state and Mississippi. Due to a staffing shortage, her employer wants her to start seeing patients across the state line as soon as possible. Mary does not hold a Mississippi license. Since both states have begun issuing or accepting compact privileges, assuming that Mary meets Mississippi's requirements (including passing that state's jurisprudence exam) she can complete the application process at ptcompact.org, pay the \$45 fee and the fee charged by Mississippi, and receive a Mississippi compact privilege in minutes. She then can treat patients in the Magnolia State.
- Sarah is a PTA who is working and living in St. Louis. She just received a job offer in Portland, Oregon, and is pleased to discover that both her home state of Missouri and Oregon are compact members that are issuing and accepting compact privileges. If Sarah will only be living and working in Oregon temporarily and intends to maintain Missouri as her home state, she can work under an Oregon compact privilege. If, however, Sarah will be moving to Oregon long-term and no longer intends to keep her primary residence in Missouri, she needs to seek a PTA license in her new home state through the Oregon Physical Therapist Licensing Board. If Sarah doesn't yet know if she'll change her primary residence to Oregon, she can work using an Oregon compact privilege, but she must report a change of primary residence to the PTCC within 30 days of the move.
- Bob is a PT who lives in Fargo, North Dakota. Many of Bob's patients reside across the border in Minnesota. He's been exploring telehealth options to better serve Minnesotans who cannot frequently come to his clinic because it's a long drive. Bob learns that his home state is issuing and accepting compact privileges. He goes to ptcompact.org to see if Minnesota, too, is a PT Compact state. Unfortunately,

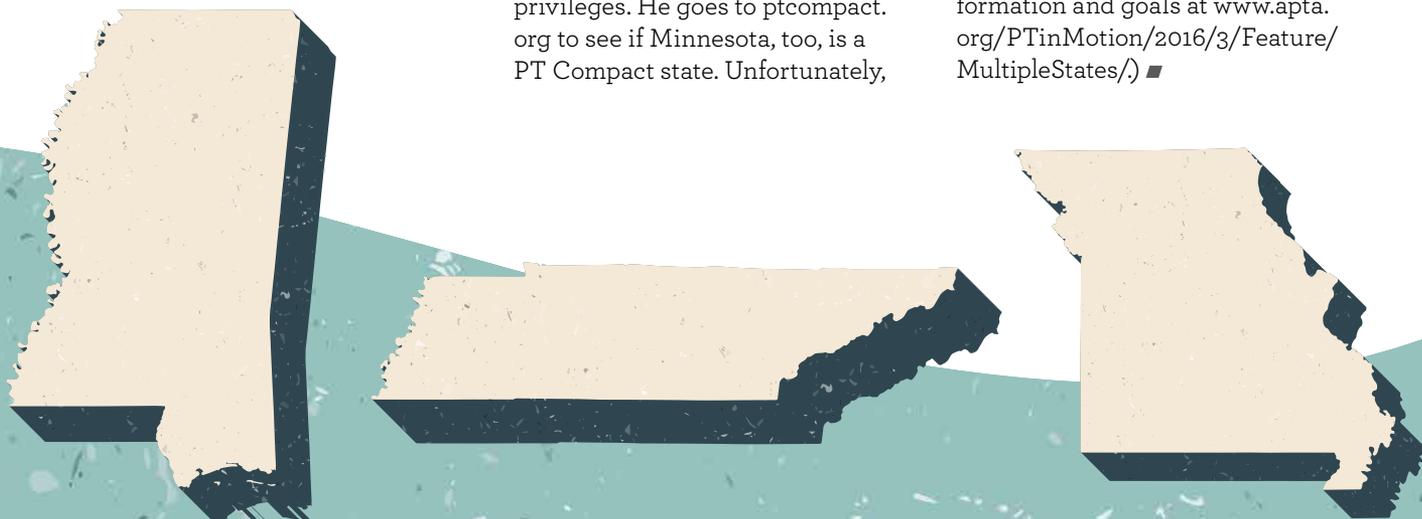
however, Minnesota has not yet joined the compact, so obtaining a compact privilege is not an option. Bob instead must apply for a Minnesota license through the Minnesota State Board of Physical Therapy.

Spanning the Nation

The PT Compact already has revolutionized how PTs and PTAs obtain authorization to provide services in more than one state. You can't take advantage of it, however, unless it's been adopted by law in your home state and in the other state or states in which you'd like compact privileges. (See "Coast To Coast" on page 11 for the status of state participation as of the writing of this column. Go to the PT Compact website for the most up-to-date list.)

If your state isn't yet a PT Compact participant, consider contacting your state chapter of APTA. Let officials there know that you'd like to see the state added to the growing list of compact states — and ask them what you can do to help make that happen.

(In addition to ptcompact.org — which provides answers to frequently asked questions, lists state compact privilege fees, and more — read a background article about the compact's formation and goals at www.apta.org/PTinMotion/2016/3/Feature/MultipleStates/) ■





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License to Delegate?

A busy PT is taken to task.



Nancy R. Kirsch, PT, DPT, PhD, FAPTA, a former member of APTA's Ethics and Judicial Committee, is the physical therapy program director and a professor at Rutgers University in Newark. She also practices in northern New Jersey.

Support personnel play valuable roles in the operations of physical therapy operations, as they do in other professions and businesses. But such staff should not be expected to assume certain responsibilities. Consider the following scenario.

Non-Benign Neglect

Lydia heads the physical therapy department at a large hospital. It's a demanding job that involves many administrative, professional, personnel, and logistical issues. Given all that, she sometimes chafes at added personal responsibilities such as fulfilling continuing competency requirements to retain her license and the process of license renewal itself.

It isn't that Lydia doesn't value continuing education. She does, and she feels strongly that what she learns in those classes

makes her a better PT. It's just the amount of time involved, as minimal as some PTs might deem it. Similarly, she appreciates the importance of license renewal, which ensures that every therapist has the necessary training and credentials to practice. She wishes the process could be automatic, though, with no need to complete a lengthy online form every two years.

This renewal cycle, Lydia's schedule is further slammed by preparations for the hospital's review by the Joint Commission. As she's rushing off to a planning

meeting, she pauses at the desk of Tina, her administrative assistant, and says, "I hate to ask this, but could you please complete my license-renewal form? I've been meaning to get back to it, but I keep getting hit with other priorities."

"I've already filled in most of the blanks," Lydia adds. "The remaining ones are information that you have at your fingertips. Just complete those, type in our corporate credit card number for payment, hit 'send,' and we'll be good to go. I'd do it myself, but one less thing to think about is big plus for me right now."

"Sure. I'm happy to do it," Tina responds, even though she's quite busy herself, and it's the first time in her 15 years at the hospital that she's been tapped for involvement in anyone's license renewal.

"Great!" Lydia says as she rushes out the door.



Two months later, when Tina begins collecting license-renewal certificates for employees' files, Lydia realizes that she hasn't yet received hers when Tina asks for it. She's not worried, because the state board is notoriously slow, and there's still a month left in her current licensure period. She makes a mental note to be sure to bring the certificate to Tina immediately upon receipt.

The month goes by quickly, with Lydia as usual buffeted by a whirlwind of pressing issues. She doesn't think about her license again until the last day of the month, when Tina again asks for the renewal certificate. "Still nothing in my mailbox," Lydia responds. "Let me look into it."

Between meetings later that day, she calls the state board to find out what's holding things up. She's immediately put on hold, where she remains, tapping her foot impatiently, for the next 10 minutes until she hangs up the phone. She resolves to try again in a few days, knowing there's a 30-day grace period on all license renewals.

A few days later, when she's again placed on hold for what seems like an interminable period, Lydia decides to put further attempts on hold.

Eventually, she reasons, the right hand will figure out what the left hand should be doing and she'll be sent the new certificate.

Tina, meanwhile, isn't eager to bother her busy supervisor with another inquiry. Another month goes by without her revisiting the subject. "I'm sure she's received it by now," Tina says to herself. "She'll give it me when she gets around to it."

Lydia doesn't give the certificate another thought until, finally, two months after her second and final abortive phone call to the state board, what she feels must be her renewal certificate at last arrives in the mail. She doesn't bother to open the envelope, as she's read the boilerplate language many times over the course of her 20-year career.

The next morning she hands Tina the unopened envelope. "Finally!" she says. "The likes of you and I are expected to meet every deadline, but it sometimes seems as if you could gestate a baby in the time it takes the state board to complete one simple action!"

Tina shares an exasperated laugh with Lydia, happy that the matter is finally resolved.



resources

At [www.apta.org/Ethics Professionalism/](http://www.apta.org/EthicsProfessionalism/)

- Ethics documents (including the Code of Ethics for the Physical Therapist and Standards of Ethical Conduct for the Physical Therapist Assistant)
- Ethical decision-making tools (past Ethics in Practice columns, categorized by ethical principle or standard; the Realm-Individual Process-Situation [RIPS] Model of Ethical Decision-Making; and opinions of APTA's Ethics and Judicial Committee)

At www.apta.org/PTinMotion/2006/2/EthicsinAction

- "Ethical Decision Making: Terminology and Context"

Ethics in Practice

Except that it's not. When Tina opens the envelope after Lydia leaves, she sees that what's enclosed is not a renewal certificate at all, but a letter demanding that Lydia immediately cease and desist from her current unlicensed practice.

The administrative assistant immediately goes back through corporate credit card statements to find the board charge, so that Lydia will have the evidence she'll need to get the error corrected. Tina's already nervous about having to tell her boss this decidedly unwelcome news.

The state board's fee, however, is nowhere to be seen in the credit card charges. Tina then recalls that she hadn't received an electronic notification of receipt at the time. Given that Tina had never completed a renewal for anyone before, she had shrugged and thought, "Maybe they don't do that." Now, however, she knows the time has come to fill her boss in the situation.

Lydia is upset, especially after looking up her license on the board's website and seeing the words "Not Renewed" in red next to her name. "Classic bureaucratic foul-up," she remarks. "Look, Tina, would you please give the state board a call and stay on the phone for as long as need be to get this mess straightened out?"

Unlike what Lydia had experienced, when Tina calls a short while later she quickly gets through to a person with answers. The response is not, however, what Tina wants to hear.

"Our records clearly show that we never received the application and payment," the board employee says. "So, everything needs to be sent, with a late fee added to the payment. Upon receipt, processing the renewal will take about two weeks. Until that process is complete, the PT, obviously, needs to step away from her job."

"Oh no!" Tina replies, nearly in tears. "All of this time I honestly hadn't considered the possibility that I'd screwed up and had only thought I'd completed the process. There was a lot on my plate that day. I guess I got distracted."

"Go easy on yourself," the board staffer advises. "None of this would've happened if the licensee hadn't pushed onto you a responsibility that shouldn't ever be delegated. The way I see it, she shouldn't have put you in that position in the first place."

Tina appreciates the support but wonders if Lydia will be so forgiving. Tina reprocesses Lydia's renewal form, paying the fee and penalty; prints out the receipt; and gathers all the paperwork to present to Lydia. She acknowledges her error and shares with Lydia the state board's admonishment to cease practicing for the time being.

Lydia is silent initially, then sighs and says, "People make mistakes. Although I have to say, this is a pretty big one. I'm not at all happy about this, and I can't promise you it won't come up during your annual review. But I don't think it serves any good purpose to place at risk the smooth operations and

Considerations and Ethical Decision-Making

License to practice is a privilege that is earned through hard work. It also is a responsibility that resides solely in the hands of the licensee. While Lydia may have authorized Tina to manage her license, that did not absolve her of her personal duty to do so.

Lydia has a responsibility to patients and staff to be licensed. Working without a license is illegal and must cease. It's important to note, too, that students must be supervised by a licensed practitioner.

Realm. The ethical realm here is organizational/institutional. Lydia is an administrator whose actions have implications for patients, staff, and the liability and reputation of the hospital.

Individual process. Lydia's unwillingness to take responsibility for her actions throughout this sequence of events betrays her lack of moral sensitivity.

Ethical situation. Lydia has exhibited moral silence from the start by not personally ensuring that her license remained current.

Ethical principles. The following principles of the Code of Ethics for the Physical Therapist provide guidance to how Lydia should have acted:

- **Principle 4B.** Physical therapists shall not exploit persons over whom they have supervisory, evaluative, or other authority (e.g., patients/clients, students, supervisees, research participants, or employees).
- **Principle 5A.** Physical therapists shall comply with applicable local, state, and federal laws and regulations.
- **Principle 7.** Physical therapists shall promote organizational behaviors and business practices that benefit patients/clients and society.



wellbeing of this department, not to mention seamless care for the patients we serve, because of your unfortunate oversight. So, no, I'm not about to step down. But I want you to let me know the second that certificate gets here. Understood?"

When Lydia exits, Tina is left with a mixture of embarrassment, uncertainty, and defiance. Yes, she made a mistake. But as the board employee had

noted, Lydia is the licensee, whose responsibility it was to renew. So, is she, Tina, completely to blame? Also, how can Lydia continue doing things like countersigning PTAs' notes during a period in which she's unlicensed? Are there not potential legal consequences to these actions?

Also, Tina asks herself, what kind of a role model is Lydia being to staff she leads and students who rotate through the hospital?

For Reflection

Have you faced a situation in your physical therapy career in which you knew you were party to illegality, but chose to turn a blind eye or keep doing what you reasoned was serving a greater good? If so, looking back, would you do now what you did then? Why, or why not?

For Followup

If you are reading the print version of this column, go

online to www.apta.org/PTinMotion/2020/6/EthicsinPractice for a selection of reader responses to the scenario, as well as my views on how the situation might be handled. If you are reading this column online, simply scroll down to the heading "Author Afternote."

Be aware, however, that it generally takes a few weeks after initial publication for feedback to achieve sufficient volume to generate this online-only feature. ■

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AI

HUGE POTENTIAL, OR AN IMPENETRABLE BLACK BOX?

Artificial intelligence offers many benefits to health care professionals – and likely will be a key component of future practice – but it’s not without its drawbacks.

By Michelle Vanderhoff

For any health profession to succeed in value-based care, there is a critical need to analyze real-time health care data and outcomes among different populations. Where health care once may have lacked real-world data to measure the effectiveness of an intervention, for example, now we simply have too much data to identify a signal in the noise – the pattern in a vast sea of data that can help improve patient outcomes.

Traditional data analytics tools, such as the dashboards in your electronic health records program, can visualize basic trends in the data collected on your patients, benchmark outcomes, and track provider performance based on specific data points. But what they

can't do is offer a wholistic view of a patient's health and identify that individual's health risk based on a multitude of factors that interact and change over time.

Enter artificial intelligence, or AI. By analyzing large data sets from electronic health records, claims databases from private payers and the Centers for Medicare and Medicaid Services, randomized controlled trials, wearable devices, and even clinical data registries, health services researchers are just beginning to scratch the surface of AI's promise to advance both practice and research.





Do We Need Data Analytics in PT Education?

While many clinicians see the importance of understanding and applying data analytics more broadly – a Stanford University survey found that nearly half of physicians and 73% of medical students plan to receive further training in the subject – there is a lack of “standardized training in continuous quality improvement in most educational systems,” says Ken Harwood, PT, PhD, FAPTA.

At George Washington University, Harwood conducted a quality improvement pilot study, funded by the Center on Health Services Training and Research – CoHSTAR – that included a 45-minute online training project, followed by individual one-on-one guided sessions and qualitative interviews. “As researchers,” Harwood explains, “we are learning a lot about clinical problem solving, differences in people’s decision making, and how they’re reading and understanding the data. I think researchers assume that if we just give outcome data to our clinicians, they’re going to know what to do with it.”

There also is the matter of trust. When it comes to artificial intelligence, it can be difficult for clinicians to interpret what the models mean, says John S. Rumsfeld, MD, PhD. “AI takes all the data and does the pattern matching,” he notes, “but it doesn’t often doesn’t tell you the reason” for the result. Having a better understanding of algorithms can give clinicians a better idea of how to apply AI tools to their decision making.

Researchers need clinicians with training in data science and biostatistics “to develop and use the correct algorithm and avoid flawed data,” says Amit Kumar, PhD, MPH. He worries that with so much publicly available data, research will be driven by data rather than by a real-world clinical question. “The use of appropriate data, the right study design, and robust analysis will help physical therapy and rehabilitation science improve health care services and outcomes.”

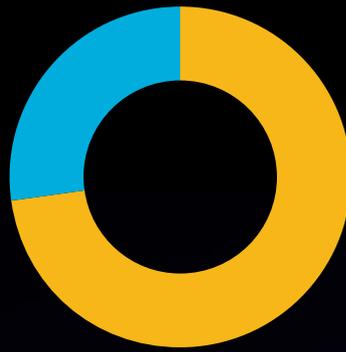
WHAT IS ARTIFICIAL INTELLIGENCE?

The term AI encompasses a variety of advanced computing methods – such as cognitive analysis, machine learning, and natural language processing – that can be used to accomplish tasks. John S. Rumsfeld, MD, PhD, chief innovation officer and chief science and quality officer at the American College of Cardiology, describes these tasks as “overlapping Olympic rings.” The aims are to identify patterns in such areas as radiology imaging, to develop algorithms that could help define care pathways, to predict risk, and even to make accurate diagnoses. AI learns to recognize patterns – and it relearns, refining its accuracy over time as it ingests greater amounts of information.

The underlying theory for artificial intelligence was born in the 1950s but, for a variety of reasons, has taken a while to be implemented in a practical way. Still, industries from finance to e-commerce – think Amazon or Netflix – have been applying AI for years. Health care has been somewhat behind in this area, says Rumsfeld, “in part because our growth in digital data has been more delayed – but now we’re seeing increasing amount of digital data, which should allow the use of AI methods.”

THE CASE FOR AI

AI applications in health care can analyze not only the data in predefined EHR fields such as weight or pain score, but also unstructured data from clinician notes, using a technique called



A Stanford University survey found that

73%

of medical students plan further training in AI.

natural language processing. Another difference between AI and other common analytics software is its ability to keep learning as it goes along, refining its ability to identify patterns or make predictions — a process referred to as “machine learning.”

According to Amit Kumar, PhD, MPH, an assistant professor in the doctor of physical therapy program at Northern Arizona University, “AI can link different variables more accurately” than can traditional biostatistical regression models. Compared with traditional analysis, AI machine learning models have shown a significantly improved ability to predict symptom exacerbation in patients with chronic obstructive pulmonary disease, for example.

In other recent studies, AI technology has detected early diabetic neuropathy during eye exams; predicted risk for heart attack, stroke, heart failure, and death from cardiac MRIs; improved the accuracy of mammograms; and caught medication errors. More recently, AI has been used to identify patients at high risk for complications from the novel human coronavirus, help forecast hospital-capacity needs for COVID-19 patients, and detect COVID-19 infection from thoracic CT scans.

Because of the potential of these recent advances, the health care artificial intelligence market is projected by some analysts to reach approximately \$27 billion by 2025 and save \$150 billion in annual health care expenditures, according to a 2019 report by UnivDatos. An industry survey by Health Catalyst, a data analytics

solutions provider, found that among large health systems data analytics is one of the highest priorities in IT budgets. That’s driven by a number of factors, including value-based care, but also by an aging population, consumer demand for transparency, and the need to manage population health.

While AI has demonstrated strength in identifying patterns, such as in radiology imaging, Rumsfeld is skeptical of

trusting potentially low-quality data to predict risk or to support decisions without first conducting clinical trials. He offers a hypothetical example of a clinical decision-making tool that suggests a patient needs to have a defibrillator implanted. “If an AI solution is based on poor-quality data or genetic markers that haven’t been fully validated, its treatment recommendations could harm people,” he says.



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DATA IS EVERYWHERE, BUT IN VARIOUS FORMS

The trustworthiness of the AI tool depends on the quality and completeness of the underlying data, and different data sources have their own strengths and weaknesses. An AI application may rely on one source or a combination of sources.

Health services researchers primarily use administrative data and EHRs. Administrative data sets typically are large and provide data over a long time period, as opposed to EHRs. CMS claims data also can be linked with ongoing longitudinal survey data containing socioeconomic status, housing information, and other variables. From the data, Kumar says, “you can track patient utilization across the continuum of care and outcomes over time.” Compared with prospective data collection, administrative data also is cheap for researchers because it’s already been collected. Its downside, though, is that because it is intended for reimbursement, it lacks valuable information on patient function, pain, and other important elements.

EHRs do collect this patient-level data, but they, too, have disadvantages. They may be missing documentation or contain inaccurate information. And while claims data is all codes and defined elements — what data scientists call “structured” data — EHRs also contain “unstructured” clinician notes in narrative form. Another complication for integrating EHR data into large data sets is that they don’t all use the

same terminology and don’t speak the same language — although there is movement in this area as government regulations increasingly push for interoperability.

Clinical data registries are another potential source of rich, high-quality data that is not yet widely used in AI applications. Christine McDonough, PT, PhD, director of APTA’s Physical Therapy Outcomes Registry, says, “Registry data is data collected during the course of care, in a standardized way, that can answer important questions that administrative data cannot, and can cover a broader range of care or conditions” than can trials and studies. McDonough is an assistant professor in the Department of Physical Therapy in the University of Pittsburgh’s School of Health and Rehabilitation Sciences.

Rumsfeld offers the example of quality benchmarking.

“Is it possible that AI can take the totality of data in the registry and do a better job than traditional risk adjustment can to level the playing field and compare quality between hospitals and institutions?” he asks. “I think that’s a hypothesis worth testing.” The American College of Cardiology has partnered with Yale University’s Center for Outcomes Research and Evaluation to evaluate ACC’s registry data and compare current risk models to a machine learning model to see if it improved accuracy. “We are seeing that the AI machine learning models are helping us be a little more personalized” regarding risk, Rumsfeld says.

POTENTIAL PITFALLS AND OPPORTUNITIES

But skeptics and enthusiasts alike cite a number of challenges that AI must overcome before clinicians and researchers can fully trust its results. Business priorities sometimes can conflict with those of partnering health services researchers, notes Kumar, which is why he says collaboration among researchers, clinicians, and even community stakeholders is key.

“Data scientists, to do this job, need clinicians — without them it’s not possible,” he says. “Health economists or data scientists often are asking a question that does not exist in the real world. It’s what clinicians want: What’s their research question? Data scientists need to respect that need that would help in solving the real-world problem.”

An area in which Ken Harwood, PT, PhD, FAPTA, sees “some movement” is data standardization. He is an associate professor of clinical research and leadership at George Washington University’s School of Medicine and Health Sciences, codirector of the university’s health care quality program, and research director in the Department of Health, Human Function, and Rehabilitation Sciences. When employed by APTA before going to GW, he worked on the CONNECT electronic health record. “Ten to fifteen years ago, we couldn’t get all the clinicians to agree on common terms; there were seven ways of saying ‘everyone’s fine,’” he recalls. That’s changed somewhat, in part due to federal requirements to use common terms among all EHRs. But there’s still room for improvement.



McDonough points to privacy issues and HIPAA regulations as an important consideration: “Protecting people’s data is the main concern from an institution’s standpoint.” While many patients would likely agree, Kumar notes, this does present difficulties for health services researchers who seek to answer important clinical questions.

In 10 years, Kumar predicts, health care will be better at answering these questions. “We are not there yet, but I think we are moving in that direction. You will be able to use data from the whole health care system to improve the consistency of care, to improve prediction models.”

Another concern is potential algorithmic bias entrenched in a piece of software because of the data from which it “learned” to recognize patterns.

For example, a clinical decision-making tool developed by Optum and reported in Modern Healthcare overidentified white patients with chronic conditions who may benefit from more comprehensive care. It also underidentified black patients who based on lab results were just as sick or sicker. This occurred because developers scored individuals based on estimated future health care costs. Those were lower for black patients because, on average, they have lower health care utilization than do white patients. There isn’t any regulation in algorithm development, but a bill introduced in the U.S. House of Representatives, the Algorithmic Accountability Act, would essentially require companies to audit algorithms that use individuals’ data.

The issue of bias points to a larger problem that experts call the “black box” of AI. Outside of developers, no one knows how an algorithm is making a decision. For clinicians to trust an AI-based tool, says McDonough, transparency is necessary. Developers and data scientists need to communicate to clinicians the data it’s based on: How accurate is it? Whose data was it? Where did it come from? Are those patients like my patients?

Another challenge relates not to AI or data collection but to the outcome of the analysis. Higher-quality data and more nuance in data analysis may change how we classify illness, Rumsfeld says. “I think we’re going to look back in 10 and 20 years and laugh at ourselves because these are gray.” For example, Rumsfeld explains, “There probably are multiple phenotypic subtypes or disease trajectory subtypes of atrial fibrillation and heart failure



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Evidence-Based Practice or Practice-Based Evidence?

AI helps address the dilemma of having too much data to identify a signal in the noise in order to help improve patient outcomes. A companion strategy involves coupling evidence-based practice with practice-based evidence.

Anne Reicherter, PT, DPT, PhD, APTA's director of academic and clinical affairs, notes, "Evidence-based practice is critical to the foundation and future of physical therapist practice." Though APTA's strategic plan states that "Physical therapist practice will deliver value by utilizing evidence, best practice, and outcomes," challenges remain for clinicians to translate evidence into their own clinical practice setting. They must sift through an ever-growing volume of research findings for applicability and feasibility, making narrowing the knowledge-to-practice gap a moving target.

"One way to address this issue is to use a practice-based evidence approach," Reicherter says. "Practice-based evidence uses data and research questions derived from real-world settings for application to clinical practice. Along with the broader research evidence, this approach incorporates patient factors and outcomes, clinician care and data literacy skills, as well as each unique clinical system structure, processes, and capacity to make decisions about care. With its ongoing cyclical assessment, practice-based evidence can

complement or enhance existing continuous quality improvement efforts." Reicherter is a board-certified clinical specialist in orthopaedic physical therapy.

Anne K. Swisher, PT, PhD, in the June 2010 issue of the *Cardiopulmonary Physical Therapy Journal*, also addressed the strengths of practice-based evidence. "To quote Albert Einstein, surely one of the greatest scientific minds in history," she wrote, "Not everything that can be counted counts, and not everything that counts can be counted."

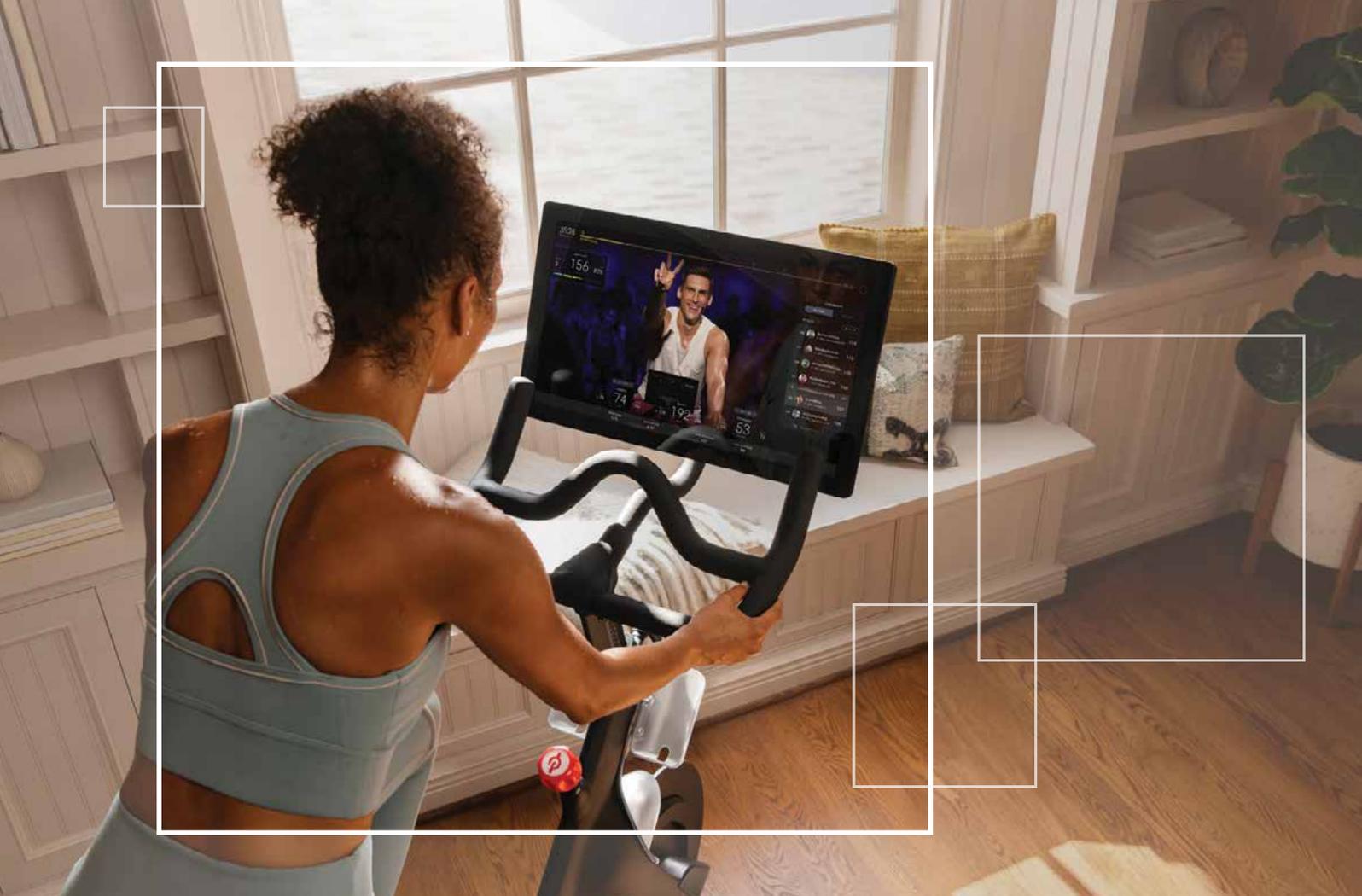
In the concept of practice-based evidence, the real, messy, complicated world is not controlled, Swisher observes. "Instead, real-world practice is documented and measured just as it occurs, warts and all. It is the process of measurement and tracking that matters, not controlling how practice is delivered. This allows us to answer a different, but no less important, question than 'Does X cause Y?' This question is 'How does adding X physical therapy intervention alter the complex personalized system of patient Y before me?' Patients are not controlled as research subjects, who must meet certain inclusion/exclusion criteria. Rather," Swisher explains, "they are grouped together by factors they share. This type of research respects that people are complex and don't readily fit the 'cause-and-effect' model of science."

and diabetes. In imaging, right now we look and say you either have mild, moderate, or severe stenosis. We're going to look back and laugh at that crude bucket. You need to have more of a sliding scale."

Ultimately, though, no matter how many advances are made in the development or application of AI, it cannot

replace human judgment. The ultimate goal of AI, says Harwood, "is not to take the decision out of the clinician's hand," but to develop a clinical decision support system. "Even with a really good algorithm, there should always be a clinician using that information to determine what's best for the patient." ■

Michelle Vanderhoff is a lead editor for member communications at APTA.



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Behavioral Change:

Motivation Comes
From Within



How can PTs apply change theory and change behavior to patients and clients to help improve outcomes?

BY KEITH LORIA

People can be stubborn — unwilling to change bad habits or behavior that can be harmful to their bodies. That’s why one necessary skill for physical therapists is to motivate their patients and clients to modify their actions in ways that increase the likelihood of successful physical therapist interventions.

Daniel Pinto, PT, PhD, an assistant professor at Marquette University, presented “ABCs of Behavior Change” at APTA’s Combined Sections Meeting in 2019. The session examined different ways to understand human behavior, from the perspectives of both economics and behavioral science.

“The profession is waking up to the fact that so much of what we do is behavioral change,” Pinto says, explaining, “It’s not atypical to have an experience with a patient who comes in with an acute episode of pain. You work with them to bring the pain down. Along the way, there’s a shared understanding of the root of the problem. Often, to get someone fully independent, you need to facilitate a lifestyle change.”

This could be something as simple as a patient daily performing prescribed exercises or keeping regular appointments. Or it could be bigger, such as a lifestyle change involving eating more healthfully or losing weight.

Pinto doesn’t ask patients if they want to change their behavior. Rather, he asks if they would like to make a plan to change that behavior. If they say yes, he works with them to come up with that plan.

As involved as the plan might be, however, it will work only if the individual is onboard and wants to change.

MarySue Ingman, PT, DSc, an associate professor and assistant director of clinical education at St. Catherine University in Minneapolis, emphasizes that people make changes only when they are ready to do so. And the readiness, she notes, varies.

“For example, someone might be actively engaged in physical activity because she can see the importance of this behavior in her life and is confident that she will return to this activity even with some setbacks. In other words, she is internally motivated to be physically active,” Ingman says.

On the other hand, Ingman adds, “She may be finding it more difficult to engage in healthy eating. She may adopt healthy eating habits for a period of time prior to a major life event — such as a wedding or milestone birthday — to achieve weight loss, yet return to less healthy eating following that event.” In that case, the patient is externally motivated.

PTs and PTAs should be able to determine where their patients are in their readiness to make lifestyle changes and to help them tap into their internal motivation for making and sustaining those changes.

Robyn McHugh, PT, DPT, of Cincinnati Children's Hospital Medical Center-Liberty Campus, says that at her institution, all physical therapy staff attend a training program on self-management that includes motivational interviewing and behavior-change techniques.

"Although it's not drastically different from the way we communicated decades ago, we realize that patients and families have a significant role in care and outcomes, so helping to empower them to feel confident in making choices and changing their behavior is crucial," McHugh says. "We use motivational interviewing and coaching techniques to help the patient and family set their own meaningful goals and plans, which in turn can increase buy-in and improve the collaborative relationship. We strive to meet the patient and family where they are in terms of readiness, importance, and confidence, helping them build on previous successes and grow in their self-efficacy."

When Zachary D. Rethorn, PT, DPT, of the Duke University School of Medicine graduated in 2015, he had no experience or training in behavior change. He saw his clinical instructors attempt to facilitate patient behavior change by simply telling them what to do.

"I approached my clinical care in the same way, expecting that when I told a patient he needed to perform a home exercise program, he would," Rethorn says. "I expected him to regularly attend visits for his musculoskeletal issues. In other words, I expected that my use of the power gradient inherent in patient care — where clinicians are the 'experts' and patients are not — would produce behavior changes in my patients."

But once Rethorn started practicing, he quickly realized that this expert-based approach was not going to be helpful.

"I'll never forget one of my patients calling to cancel an appointment because the roof had fallen in their house and now they would be living on the other side of town, about 30 minutes away by car," he says. "By public transit, my clinic was now well over an hour away. How could I possibly expect my patients to engage in behavior change like coming to visits when they had much more fundamental needs to address? How could I expect to help them change their behaviors to get better sleep, more physical activity, or a more healthful diet when they weren't sure where they would be living the next week?"

Rethorn quickly realized that he was not the most important part of his patients' days or weeks. That realization freed him to start serving them in a different way.

"The evidence is so clear. Health behaviors impact patients' risk for and recovery from musculoskeletal conditions," Rethorn says. "There was an ethical imperative for me to do everything in my power to assist patients in navigating the behavior changes needed to be healthy. But how?"

Rethorn realized that the first thing he needed was further training in how to better facilitate behavior change in patients. He registered for APTA's NEXT conference in 2016 and attended a master class on health coaching led by Janet Bezner, PT, DPT, PhD, FAPTA.

"I watched an audience member who was ambivalent about engaging in more activity be coached through the process of change and walk away a few minutes later firmly committed to changing — with a solid, self-generated plan," he says. "I was stunned. I had never seen this kind of communication before. It seemed a bit like magic to me. I left NEXT realizing that, more than any specific technique, I needed to learn how to better help patients change their own behaviors."

Rethorn soon completed a health coaching course and began incorporating its lessons into his practice. He recalls the first patient with whom he used this approach.

"He had experienced significant persistent pain in both legs for over 10 years. I had seen him two times previously, with little improvement in his symptoms," Rethorn says. "I believed that getting regular physical activity would improve his quality of life and perhaps reduce his pain as well. But each time I had worked with him, achieving increased activity was elusive. He resisted my suggestions, telling me he didn't really have any hope of improving."

On this occasion, Rethorn used a health coaching approach and explicitly told his patient that he would not be seeking to provide answers on ways to improve activity levels. Instead, he told the patient that he would be serving more as a partner and guide in the process, with the goal being self-generated solutions.

"I was blown away by how much the patient's attitude changed just by clearly stating my approach," Rethorn says. "He suddenly was open to exploring what kinds of changes might improve his life. He recognized that his lack of physical activity was likely keeping him from engaging in the activities that were meaningful to him."

But this is real life, not a Hollywood movie. The results, while positive, weren't perfect. Though Rethorn's patient was able to begin the behavior change process, he struggled with relapses and ultimately achieved a modest but meaningful improvement in his quality of life and his pain. And yet the patient's perception of this experience was extremely different from what the measurable outcomes would suggest.

“I had never seen this kind of communication before. I left NEXT realizing that, more than any specific technique, I needed to learn how to better help patients change their own behaviors.”

— ZACHARY D. RETHORN



“He told me that this was the first time in many years that he felt in control of his health,” Rethorn says. “He said he felt respected and dignified when working with me. That was a huge contrast to the first two times we had worked together. Since then, I have extensively integrated health coaching into my practice.”

An Evolution of Change

Maura Daly Iversen, PT, DPT, MPH, FAPTA, a professor and director of rehabilitation and the epidemiology lab at Northeastern University, believes there has been an increased focus within the physical therapy community in recent years on behavioral theories in clinical practice and research.

“I began my career in the late 1990s as a translational researcher, applying behavioral theories to exercise interventions for people with arthritis. My goal was to understand how providers and patients communicate about exercise and physical therapy, and how we can motivate patients to be physically active,” she says. “We need to apply a counseling process where

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“Motivation is elicited, not imposed. It is a very useful tool in the whole scope of behavior change and is a great step in helping to empower patients.”

— ROBYN McHUGH

we ‘roll with resistance’ and facilitate self-discovery and problem-solving to best understand this and help patients develop an implementation plan for exercise based on their assessment of the pros and cons and how to overcome obstacles to exercise.”

McHugh notes that behavior change and motivational interviewing currently are being taught in most PT schools around the country, so new grads are better equipped to have these conversations with their patients.

In the five years that Rethorn has been practicing, he’s seen a definite shift in the profession’s understanding and ownership of the need to facilitate behavior change in patients.

“Though some PTs still operate in ‘expert’ mode, an increasing number are acknowledging that a coaching paradigm can be more helpful to facilitate behavior change,” he says. “I’ve noticed a shift in entry-level education as well. My PT school alma mater incorporated more information about behavior change in the last few years. I believe this is a growing trend. Here at Duke, students receive significant didactic content addressing behavior change. It’s threaded through the curriculum.”

Ira Gorman, PT, PhD, MSPH, an assistant dean in the School of Physical Therapy at Regis University, says much

of his research on behavioral change is based on what he calls the “ecological model” — evaluating the environment and how it affects possible change.

For example, he looks at building design and supports incorporating more user-friendly stairs to encourage people to bypass the elevators. And he questions why a fast food outlet might be advertising healthy eating but sells a salad for \$5 the same week it puts its double burger on sale for 99 cents.

“If a family of four chooses the cheeseburgers, we all think they made a bad choice, but they made a practical choice based on their situation,” Gorman says. “The same thing happens with physical activity. We need to make activity easier for people, whether that means having more trails available in parks or building time into their daily work schedule for exercise. It also means policy changes, such as making smoking illegal in public places.”

Motivational Interviewing

Motivational interviewing is a counseling approach based on James Prochaska’s stages of change and social learning theory. (See “Tracing the Stages of Change” on page 34.)

McHugh explains that motivational interviewing was developed by Stephen Rollnick and William Miller in the 1980s

and initially used when working with patients with problems with alcohol and addictive drugs. It since has expanded into many other areas in health care and even beyond.

“It is focused and goal-directed counseling, as opposed to nondirective counseling,” she says. “Motivation is elicited, not imposed. It is a very useful tool in the whole scope of behavior change and is a great step in helping to empower patients.”

The key component of motivational interviewing is to engage in discussion with patients to help them verbalize the pros and cons of behavior change.

“I have used motivational interviewing to encourage patients with osteoarthritis to be more compliant with their medications and to engage in exercise to promote health,” Iversen says. “Motivational interviewing has been used with modest benefits to promote exercise and physical activity after total joint replacement,” she adds.

The challenge, Iversen notes, is that motivational interviewing requires a change of mindset for some clinicians. For example, clinicians may want to provide patients with solutions to overcome exercise barriers rather than help patients self-discover their own motivations and concerns with counseling techniques. But, she emphasizes, motivational interviewing can be learned and improved upon over time.

McHugh sees other challenges as well. Motivational interviewing requires PTs to take a step back from much of what they learned in school about providing the answer and seeking to “fix” people. Instead, the goal is to help the patient and family come up with a plan or solution for themselves.

“We’ve been learning to provide people with the knowledge and information, but then to give them the power to do something with those resources,” she says. “Of course,” she adds, “there is an art to steering the patient and family in the right direction without directly giving them the answer.”

Another challenge comes from the other side of the equation — the patient and, when it applies, family. For behavior change to happen at

all, McHugh says, they must feel that the change is important to them. Further, they have to be ready and confident to carry out their portion of the plan.

“Also, it’s one thing to help patients and families with behavior change in a situation where the impairments or limitations are temporary or acute. But it takes the conversation to another level when we’re working with a patient who has a chronic condition,” she says.

Rethorn feels one key challenge for the PT space is recognizing the need for behavior change.

“Many PTs and PTAs do not recognize that they are really in the behavior-change business. Almost all of our interventions and recommendations involve patients changing their behavior,” he says. “Many clinicians do not see their practice in this light. Alternatively, clinicians may believe that their patients comply with their home exercise programs despite literature reporting adherence rates as low as 13%. If clinicians do not follow up with patients beyond the end of an episode of care, they may not have an accurate

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Tracing the Stages of Change

Although there are many models of change, one of the more popular is the Transtheoretical Model — sometimes referred to as the Stages of Change Model — developed by James Prochaska and Carlo DiClemente in the late 1970s. It evolved through the 1990s as the results of studies — including those examining the experiences of smokers who sought to quit — were published. The model suggests that individuals go through six stages of change.

Precontemplation: People do not intend to take action in the foreseeable future. People in this stage often underestimate the benefits of changing behavior and place too much emphasis on the drawbacks of behavioral change.

Contemplation: People intend to start the behavior in the near future. They recognize their behavior may be causing problems. They place equal emphasis on the pros and cons of behavior change.

Preparation: People are ready to take action. They start to take small steps toward the behavior change and believe it will help them.

Action: People have recently changed their behavior and intend to keep moving forward with that behavior change.

Maintenance: People have sustained their behavior change for a while and intend to maintain it into the future. They work to prevent relapse to earlier stages.

Termination: People have no desire to return to their previous behaviors. Since this is rarely reached, people tend to remain in the maintenance stage. (Termination was not in the original model.)

In addition, the model in the 1980s incorporated **Relapse** (recycling) which is not a stage in itself but rather the “return from Action or Maintenance to an earlier stage.”

understanding of their efforts to effect behavior change.”

Gorman notes that even if behavior is altered, a PT should be helping to ensure that the change is maintained and supported beyond the short term.

“The patient needs reinforcement and different types of activities built into their daily life,” he says. “If a person wants to exercise and increase his or her physical activity, you can come up with a program or plan, but then you want to make sure the patient continues with the plan.”

This could be as simple as the PT checking in with the patient, having the patient keep a log, or just emphasizing at each appointment the importance of keeping up with the plan. Gorman even holds walking contests with his patients to encourage them.

“People have complex lives and are under a lot of stress, so I always look at their environment and what’s going on, so that I can help support them and make these changes sustainable,” Gorman says. “Choice is important, but taking the environment into account promotes making better choices.”

Leading-Edge Examples

As more PTs get onboard with the importance of behavioral change for their patients, a growing number of strategies are being developed to help facilitate this change.

For instance, Iversen says many mobile apps have been developed to promote

physical activity using behavioral theories, such as social learning theory, Prochaska's stages of change, and Albert Bandura's writings on self-efficacy.

"Even gaming programs use social modeling and social feedback to promote engagement and to sustain interest in games," she notes.

McHugh points out that anecdotal examples would include the discussions PTs have with patients and their families on a regular basis. While not necessarily "cutting edge," these conversations often are transformative from the standpoints of patient experience and outcomes.

"Currently, the literature on these topics is blossoming to address a variety of conditions and environments," she says. "There are some techniques that I believe most PTs offer to their patients, such as empathy and affirmation. As with most skills and tools, we probably all could improve our delivery of these benefits. This includes active and reflective listening, and setting patient-directed goals."

Gorman hypothesizes that younger generations are more open to engaging patients in behavioral change because

social media makes it easier to stay on top of things and be more aware of what's happening.

Help Is Out There

Brad Cooper, PT, PhD, MSPT, MBA, founder and CEO of the Littleton, Colorado-based Catalyst Coaching Institute, says that no matter how much PTs may want their patients to change, they can't make them alter their behavior.

"A big tool is to ask the right questions," he says. "If a patient comes in and their shoulder is hurting, we want them to do their home exercise program and give a full effort during therapy. But we need to find out why the impairment matters to them. They might like to play tennis, or they may need their shoulder completely intact for their job. If you get to the root of why they are in therapy, it gets them thinking of their goals, and they are more likely to make changes."

Whether it's from motivational interviewing or some other technique, PTs report finding it easier to engage patients in behavioral change and seeing the positive results.



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“The key is to find out what motivates patients and help them problem-solve how to address barriers to change,” Iversen says. “We need to use a true patient-centric approach, gathering information about patients’ perceptions, attitudes, and beliefs toward physical therapy and exercise and engaging them in shared decision-making regarding their plan of care. If we implement this approach, we can affect behavior change.”

Ingman, along with her colleagues Beth Black, PT, DSc, and Bezner, have developed a brief questionnaire — the Physical Therapy Healthy Living Appraisal — that PTs in clinical practice can use to assess their patients’ readiness, importance, and confidence in engaging in six health behaviors: physical activity, strengthening, stress management, sleep hygiene practices, healthy eating, and abstinence from smoking.

The questionnaire can invite conversation between PTs and patients about which healthful behaviors are most important for them, even if they may lack the confidence to make the necessary changes. “Through the use of health coaching communication techniques such as motivational interviewing,” Inman says, “PTs and PTAs can assist their patients in finding their own internal motivations.”

Rethorn notes that individual behaviors do not happen in a vacuum. While changing individuals’ behavior is good, ultimately PTs need ways to scale behavior change from individuals to populations.

For example, his patients’ barriers to changing behaviors often arose from a perceived concern for safety in their neighborhoods stemming from conditions such as a lack of sidewalks, shade, or parks.

“What’s the solution here? I can coach individuals to change, but without wider system changes my results always will be less than ideal,” he says. “Part of the role of PTs in changing the behavior of our patients is to look upstream at the systemic and social determinants of health. If we design our systems in ways that make getting enough physical activity a no-brainer, it takes the effort and will-power out of the equation.”



“The key is to find out what motivates patients and help them problem-solve how to address barriers to change.”

— MAURA DALY IVERSEN

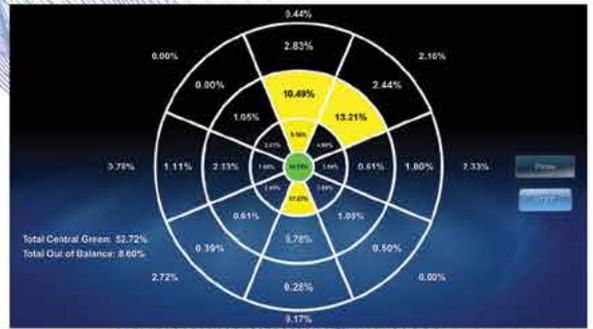
He points out that other countries have adopted policy and systems-level strategies to great effect. For instance, the Netherlands and Denmark have promoted bicycling policies and have supplied the needed infrastructure. As a result, bicycling for transportation in those countries often makes more sense than driving a car.

“Upskilling to effectively promote behavior change at a clinician-to-patient level is good, but making the healthful choice the easy choice for a population is even better,” Rethorn says. ■

Keith Loria is a freelance writer.



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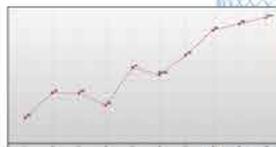
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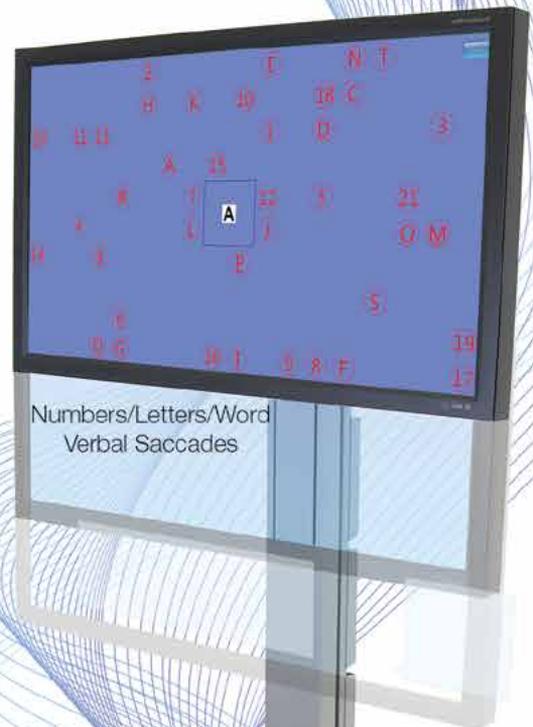
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IT'S LOVELY AT THE TOP

BY ERIC RIES

PTs and PTAs who are rock climbers have a passion for the sport and for helping their fellow climbers avoid and rehab from injuries.

Allison Stowers, PT, DPT, sums up the value she offers her fellow rock climbers with an anecdote.

“I had an injured climber say to me, ‘It was the second move from the top on Osiris — that gaston where you’re pulling up to the top hold.’” Another PT might have asked the patient to kindly speak English. Stowers, however, not only fully understood the sentence, but also could envision the site and draw from her experience in treating the injury.

Osiris, she knew, is a boulder “problem” that’s graded V10 on a scale that runs from V0 to V17. It’s located in Chattanooga, Tennessee, where Stowers treats climbers at Peak Fitness & Physical Therapy. A gaston is a type of grip in which the climber uses one hand with the thumb down and the elbow out to maintain friction against a hold by pressing outward toward the elbow.

“When that person referenced Osiris, I could picture the move because I’ve



James Lee tackles a climbing wall.

been a Chattanooga climber for more than 10 years,” Stowers says. “Whether it’s from doing the climb myself or having spotted other climbers, I have pretty good knowledge of movements required on problems around here. I’d seen this injury in other climbers. Osiris is a difficult problem that can cause awkward body positions. This patient had a posterior rotator cuff strain. Rehabbing it involved typical rotator cuff strengthening, shoulder stability exercises, mimicking climbing movements, doing gym work together, then gradually increasing demands on the body, with each step building on the previous ones.”

Jason Hooper, PT, DPT, has developed a rock climbing-specific program at Koman Family Outpatient Clinic on the University of California, San Diego’s La Jolla campus. He was moved to do so because as he was gaining climbing experience he saw that many climbers with injuries weren’t seeking medical attention. That upset him, but he understood why it was happening.

“Let’s say you have a climber who tells his physician or his PT, ‘I was doing a gaston and a full crimp, and my foot blew, and that’s why my hand hurts.’ Most medical professionals,” Hooper notes, “aren’t going to have any idea what that means. And that’s a huge turnoff.”

A full crimp is a hand position most commonly used on handholds that have little recess or incut. To execute it, climbers place the pads of their fingertips on the hold’s edge, then fix their interphalangeal joint by curling their fingers. The crimp is secured by pressing the thumb on the fingernail of the index finger so that it locks in place. When a foot “blows,” it has come

off the hold suddenly, increasing the force placed on the hands.

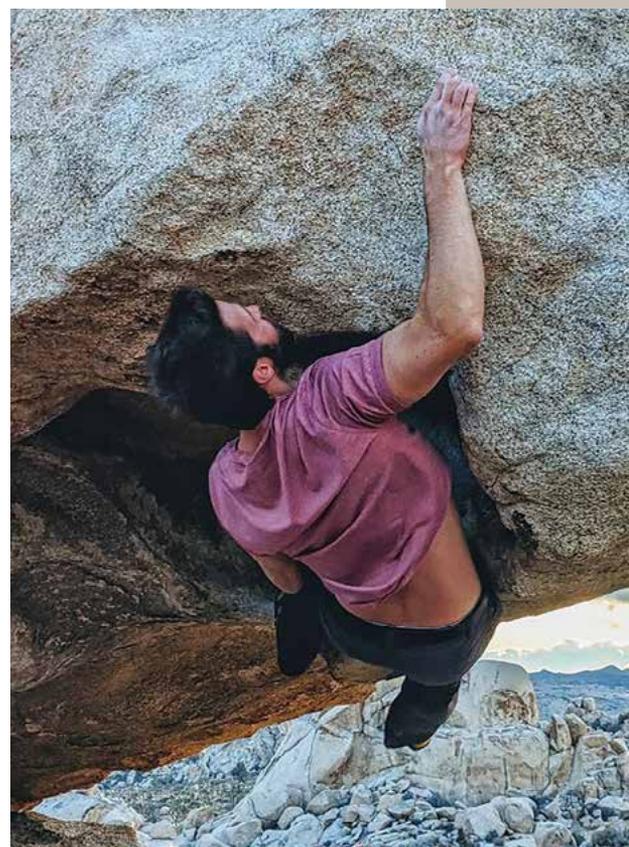
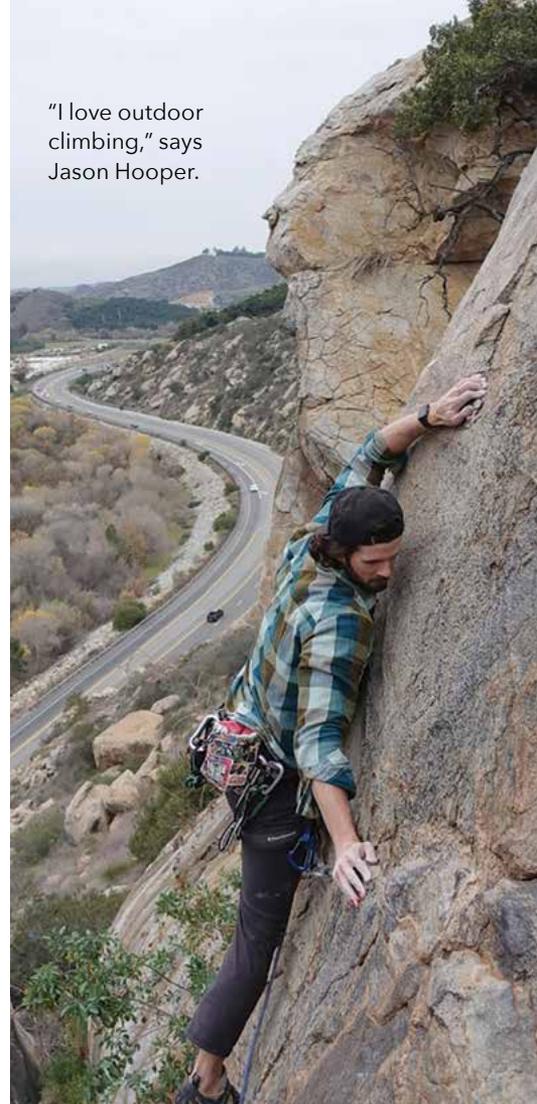
Rock climbing — whether it’s done indoors in a gym or outdoors on a rock face, and regardless of the particular style (see “Types of Climbing” on the next page) — is “a sport that places unique stresses on the body,” notes Hooper, a board-certified clinical specialist in orthopaedic physical therapy. “If you don’t understand and fully appreciate those factors, it’s hard to optimally help the person who’s sustained the injury.”

Jennifer Truong, PT, DPT, who says she’s been “geeking out” on climbing for 13 years and is “really happy to be able to serve my community,” lived in California before moving north to Oregon, where she’s employed at Focus Physical Therapy in Bend.

Counterintuitively, “I still have a very solid fear of heights,” Truong concedes. She prefers to “boulder” close to the ground, primarily indoors. She’s done both roped and unroped climbing in California, however, and she’s familiar with many of that state’s iconic climbs and the moves required to scale them. “That makes it easy for me to bond with other climbers — especially with other boulderers,” she says.

“People will ask me, ‘Have you done this move on that climb?’ And I’ll be, like, ‘That hold is terrible!’ It’s so nuanced and specific, having that knowledge,” Truong says. “Climbers value being able to come to me with ideas about how to best train for a specific climb. By combining my physical therapy expertise with my background in climbing, I can offer them solid guidance, even if I haven’t attempted that particular climb.”

“I love outdoor climbing,” says Jason Hooper.





TYPES OF CLIMBING

Free Climbing

Free climbers rely solely on their own body to complete a route. Ropes and gear can be used to protect free climbers should they fall, but the equipment isn't used to aid upward movement. Within free climbing are roped and unroped approaches.

ROPED

Top roping uses ropes that run through preexisting or placed anchors at the top of a climbing route. One end of the rope is attached to the climber and the other end is attached to another person: the belayer, who's on the ground. The belayer takes in the excess rope as the climber ascends and ensures that if the climber falls, that individual will be caught by the rope that runs through a belay device attached to their harness. In climbing gyms, top ropes already are set up on walls.

Lead climbing, unlike top roping, requires climbers to anchor the rope to the rock as they climb. They start the climb with no protection from the rope, but they finish the climb with the equivalent amount of protection as a top rope climb. Lead climbing also is done using a belayer.

There are two primary types of lead climbing: sport and traditional, or trad.

Sport climbing uses pre-placed bolts that are drilled into the rock to provide protection to the climber. Sport climbers clip a quickdraw – a short sling with a carabiner (coupling link) on each end – to the bolt, then clip their climbing rope to the quickdraw.

This type of lead climbing can be done in a climbing gym or outdoors.

In trad climbing, there are no pre-placed protections. Rather, climbers place gear (spring-loaded camming devices, wedge-shaped nuts, and six-sided metal hexes) into cracks as they climb, then attach their rope to the gear and continue climbing until they find the next appropriate place to attach gear.

There's also a form of roped climbing called speed climbing, in which climbers secure safety ropes to themselves and compete to be the fastest to scale a 15-meter wall that's set at a 95% angle. Speed climbing is one of three disciplines – the others are bouldering and lead climbing – that have been combined into what is labeled "sport climbing" and will be included for the first time at the next Summer Olympic Games (originally scheduled for this summer in Tokyo but now planned for 2021 because of disruptions caused by the COVID-19 pandemic).

UNROPED

There are three main types of unroped climbing.

Bouldering is done on indoor walls or outdoor rocks that typically are no higher than 20 feet off the ground, although "highballs" can be up to 35 feet high. Boulderers don't use any gear other than the climbing shoes and chalk for grip that all climbers use. They do, however, place crash mats or pads below their bouldering route for safety.

Free soloing is climbing a steep rock face without ropes, gear, or protection of any kind.

Deep water soloing, also known as psicobloc, is free soloing over a body of water that's deep enough to offer some protection against injury in the event of a fall.

Aid Climbing

Climbers place equipment into the rock wall and use a system of ropes, anchors, belay and rappel devices, and rope stirrups, also known as aid slings, for assistance. Instead of pulling on the rock itself with their hands, aid climbers depend on their carefully placed gear to help ascend the wall. This style usually is done only on very difficult sections of a route, where pulling on the rock is not an option.





"I'm engaged in the full range of services to climbers — from injury prevention, to injury treatment, to helping them training at a high level to achieve a very specific goal. It's really fun," Truong says.

(For a student's take on how rock climbing has helped her prepare for her career in physical therapy even during the COVID-19 pandemic, go to www.apta.org/Blogs/Pulse/2020/4/Climb/)

Peak Demand

In announcing the findings of its first-ever "State of Climbing Report" — compiled in partnership with more than a dozen climbing-related organization and industry groups, and released in July 2019 — the American Alpine Club declared that "the rising influence of the sport of climbing in the United States is undeniable," and that "data shows a bright future, with millions of millennials taking up the sport."

According to the report, the number of U.S. climbers — 65% of them between the ages of 18 and 35 — stood in 2018 at 4.4% of the overall population. That works out to more than 14 million people. Of that number, slightly more than half — 52% — were primarily indoor climbers.

The indoor climbing explosion had been noted in a New York Times article in March 2017 that bore the headline "A Boom in Rock Climbing, Minus the Rocks." By December 2019, the Colorado Sun was reporting, "Today, there are more than 500 gyms in the U.S. dedicated to rock climbing and hundreds more walls in recreation and community centers around the country." This February — before the COVID 19 pandemic hit the United States — the Climbing Business Journal wrote that 75 new climbing gyms were expected to open by year's end.

Climbing also is now an Olympic sport. An event dubbed sport climbing that combines the disciplines of lead climbing, bouldering, and speed climbing will be part of the Summer Games in Tokyo in 2021. The format is controversial in

the climbing world because the skillsets of each discipline are different and, in the words of James Lee, PT, DPT, it's "not normal" for even elite climbers to engage — let alone excel — in all three. Still, the owner of Lee Physical Therapy in Chicago adds, "Most of us are super-excited about climbing being added to the Olympics. The exposure will further fuel the sport's growth."

That growth, and what he saw as a "huge need" for the expertise of climbing-savvy PTs like him in injury treatment and prevention, prompted John Huang, PT, DPT, to begin treating climbers in January 2019 out of an office space within Rockreation, a Southern California climbing gym that he and his wife had been frequenting. That, in turn, prompted him to create The Climbing Clinic, an onsite physical health and wellness service to the local climbing community.

But Huang wanted to reach other climbers, as well, so he started commenting on the Facebook page of a large meetup group, SoCal Climbing. What he found there was something he already knew, but that reflected the troubling breadth of a problem.

"People would ask questions about injuries, and other climbers would answer them, and it often would be the worst advice possible," Huang says. "I'd feel compelled to jump in — less to market myself than, first and foremost, to correct bad information that wasn't going to help treat the injury and might well make things worse."

One factor at work, Huang saw, is that many climbers are independent-minded and prize their problem-solving skills when it comes to rehabbing injury. But an even bigger issue, Huang knew both from his conversations with climbers and from limited research that's been conducted in the field, was that — per those comments by Stowers, Hooper, and Truong — "climbers often are wary of health professionals because typically they aren't familiar with climbing terminology and with climbing as a sport. If

they don't understand the mindset and goals of a climber," Huang says, "the perception is that the health care provider can't possibly understand the unique demands that all of the idiosyncrasies of climbing places on the body, the precise conditions that can cause injury in the first place, and what's needed to best avoid reinjury."

Those concerns track with research articles cited by Huang and Hooper. One piece — a review of literature on the incidence and risk factors for finger injuries in rock climbing that

was published in the American College of Sports Medicine's "Current Sports Medicine Reports" in 2016 — cited an earlier study suggesting that "many chronic overuse injuries in climbing populations go undiagnosed," in part "due to the perception by climbers that some health care professionals are not familiar with climbing-related injuries."

Another piece, a 2008 study on "The Epidemiology of Rock-Climbing Injuries" published in the Journal of British Sports

Medicine, found that although about 50% of a studied group of climbers had sustained one or more injuries in the previous year — causing "a total of 275 distinct anatomical injuries" — 12% of those injured hadn't sought any medical advice at all, and, of the 38% who had, more than a third (14%) had consulted only with other climbers.

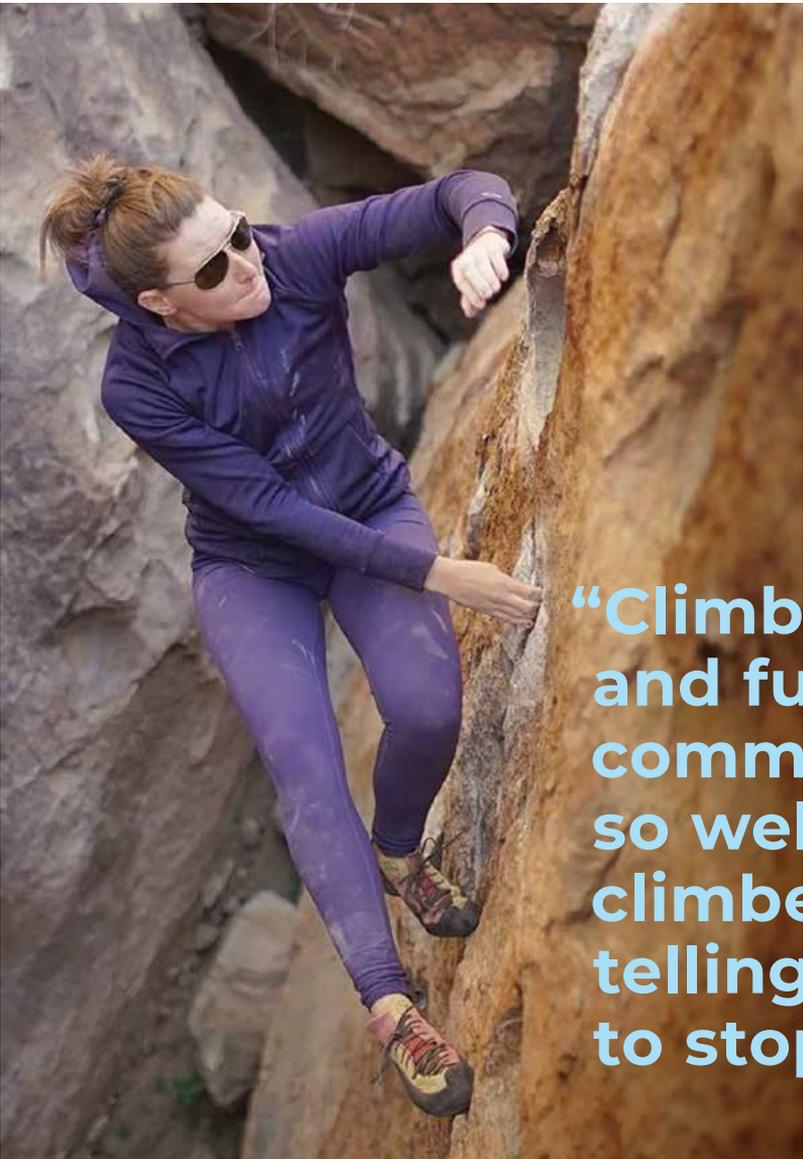
"You'll find that with younger climbers especially — people in their teens and early 20s — many of them will follow any advice they get from other climbers," says Alexandra Ortiz, PTA, of SPEAR Physical Therapy in New York City.

That's decidedly not true, however, of a piece of advice that injured climbers all too often get from health care professionals who are unfamiliar with the sport, say those interviewed for this article.

"A lot of climbers are used to being told by physicians and others in health care, 'Just stop climbing,'" Truong notes. "But, as is the case with avid practitioners of many other sports, that's just not an option."

Stowers seconds that observation.

"Climbing is addicting and fun, and the community aspect is so welcoming. To tell climbers to quit is like telling lifelong runners to stop running," she says. "It's like urging them give up a big part of their mental health that helps them in the day-to-day."



"Climbing is addicting and fun, and the community aspect is so welcoming. To tell climbers to quit is like telling lifelong runners to stop running."

— ALLISON STOWERS (LEFT)

THE 'FREE SOLO' PHENOMENON

Even people who know nothing else about rock climbing seem to have seen "Free Solo" or at least know what it's about.

The film, which won the 2019 Academy Award for Best Documentary Feature, chronicles climber Alex Honnold's quixotic, nerve-wracking, but ultimately successful attempt to reach the top of Yosemite National Park's iconic El Capitan without ropes or any safety equipment. His 3,000-foot ascent transforms in viewers' eyes from a seeming death wish to a soaring triumph of the human will over the course of about four hours of climbing time and an hour and a half on the screen.

Honnold's feat bears precious little similarity to what Oliver Rivera, PT, DPT, does – although, he notes, "When I tell patients that I rock-climb, 75% of the time that's the first thing they bring up. They ask, "You don't do what that guy in the movie does, do you?"

Rivera assures them that his ambitions aren't nearly so lofty nor his nerves so steely.

"I tell them that since I'm afraid of heights, I mostly stick to bouldering, where I'm only 20 feet off the ground," he says. "Most people find it that kind of funny. I do, too, to tell you the truth. But I enjoy the challenge of controlling my emotions when I climb, even at that height."

"I get asked about 'Free Solo' a lot by people outside the climbing community," echoes Jason Hooper, PT, DPT. "It's kind of a running theme." His own preferences are bouldering and sport climbing with a rope and fixed bolts. "I think many people who've been climbing for a while have at least a small interest in free soloing, but on much easier and shorter routes," he says. "That includes me. Maybe I'll try it over water one day," he speculates. That type of free soloing, known as psicobloc, offers

some protection against injury in event of a fall.

Allison Stowers, PT, DPT, who says she "can write a list of names of friends who've died climbing," is all too aware of the sport's dangers.

"While I don't think most climbers take unnecessary risks, I do think we sometimes can get too comfortable with the situation at hand," she observes. "For example, if I'm bouldering and I've completed a certain climb 50 times without falling, I might not bring a crash pad that 51st time to save a little packing time. But if I do that, there's always the chance that a hold will break, or that I'll slip up and injure myself. So, my advice to all climbers is to never get comfortable. Stay a little scared."

Those interviewed for this article emphasize that there's a major difference in skill level, preparation, and mindset between what Alex Honnold does and the pursuits of recreational and even most professional climbers.

"When patients and other people who aren't climbers ask me if I free solo, I tell them that I boulder, and that I'm nowhere near

advanced or confident enough to do that," says Alexandra Ortiz, PTA. "That style of climbing requires an incredible amount of bravery, preparation, and body awareness.

"As seen in the documentary," she continues, "Alex researches the entire climb and familiarizes himself with every step, every scenario that possibly could occur. He knows each climb he attempts as well as he knows his own body. That kind of skill and knowledge is hard to teach."

John Huang, PT, DPT, an avid sport climber, calls Honnold "a very, very special case" whose success in scaling El Capitan without gear was "incredible." He's quick to add, "Less than 1% of climbers ever attempt anything even remotely close to that."

When it comes to taking necessary safety steps, Stowers reminds herself and other climbers of two things, she says. "The first is that geologic time includes now" – meaning that rock conditions change and climbers must be prepared for all possible situations. "The second is that the laws of gravity are always in effect."





On the flip side, “I’ve had colleagues refer patients to me who are climbers, and once they learn of my background and realize that I know what I’m taking about when it comes to their injuries and rehab, good rapport and a strong therapy alliance build up right away,” says Oliver Rivera, PT, DPT, of the Shirley Ryan AbilityLab in Chicago.

“It’s like if you’re seeing a doc about a football injury. The ideal is to see the head physician of a professional football team, because that person is definitely going to know what you’re going through and the best way to address it. It’s the same way with climbing,” says Rivera, who’s a board-certified clinical specialist in orthopaedic physical therapy.

“It’s one thing to be told by a health professional, ‘Your shoulder will get better if you stop climbing,’” Stowers says. “Instead, I

“Once they learn of my background and realize that I know what I’m taking about, good rapport and a strong therapy alliance build up right away.”

– OLIVER RIVERA

can provide the personal experience and professional knowledge to approach that issue from the standpoint of, ‘Let’s see how we can modify what you’re doing to try to prevent shoulder injury from recurring.’”

Putting Bodies to the Test

“Rock climbing in a basic sense puts a lot of strain on hands, elbows, and shoulders. And then there are landing injuries affecting the foot, ankle, knee, and even lower back,” Hooper says.

“Hand injuries are the most common things that I see,” he continues. “Many of my patients come in with A2 pulley injuries.

I see a lot of flexor digitorum superficialis and profundus injuries. Some elbow injuries are from overuse — medial or lateral epicondylagia. And sometimes radial and nerve entrapment issues.

“Secondary to hand and elbow injuries, I see a lot of shoulder injuries,” Hooper says. “It’s usually mechanical, so typically there is weakness in the middle or lower trapezius muscles. Especially weakness in the external rotators. The external rotators are paramount in rock climbing. When they’re weakened, that creates huge biomechanical deficits for climbing.

“Then, finally, the third category I see a lot are foot and ankle injuries, and those are typically from falls while bouldering.” Among those injuries, the most common, he says, are contusions; calcaneus, talus, and ankle fractures; and ankle sprains with lateral ligament injury.

“The big things for me are hips and shoulders,” Stowers says. “Shoulders are number one. I see a lot of labral tears — both suspected, where we’re trying to hold off on surgery, and post-op tears.

“And then with hips, the most common injury I see here in the Southeast is high hamstring strains,” she continues. “The kinds of injuries that PTs see in climbers can be very region-specific because of factors such as the type of rock — there’s a lot of sandstone here — and its features. We have a

lot of overhung roof formations that require climbers to engage in heel-hooking and tow-hooking maneuvers. In other regions those heel hooks might not be as prevalent.”

“I do see a lot of elbow injuries,” Stowers adds. “Golf and tennis elbow — but in our world we usually call it climbers’ elbow.”

Treating climbers’ injuries entails a variety of approaches, say the PTs interviewed for this article.

“When it comes to a lot of hand and elbow injuries, I use a combination of soft tissue and instrument-assisted tissue mobilization, as well as myofascial decompression,”

Hooper says. “As I’m working with these athletes, we’re trying to remodel the tissue as best we can while it’s healing.”

“Tailored strength training is very important,” he adds. “That may involve eccentric training. And your basic wrist flexion exercise isn’t going to be quite enough for a rock climber, because while those exercises are going to help work the flexor carpi radialis and ulnaris, a lot of times it’s the deeper, longer flexor muscles in the hands that we need to target. So, I’ll use special exercises that are tailored to this sport.”

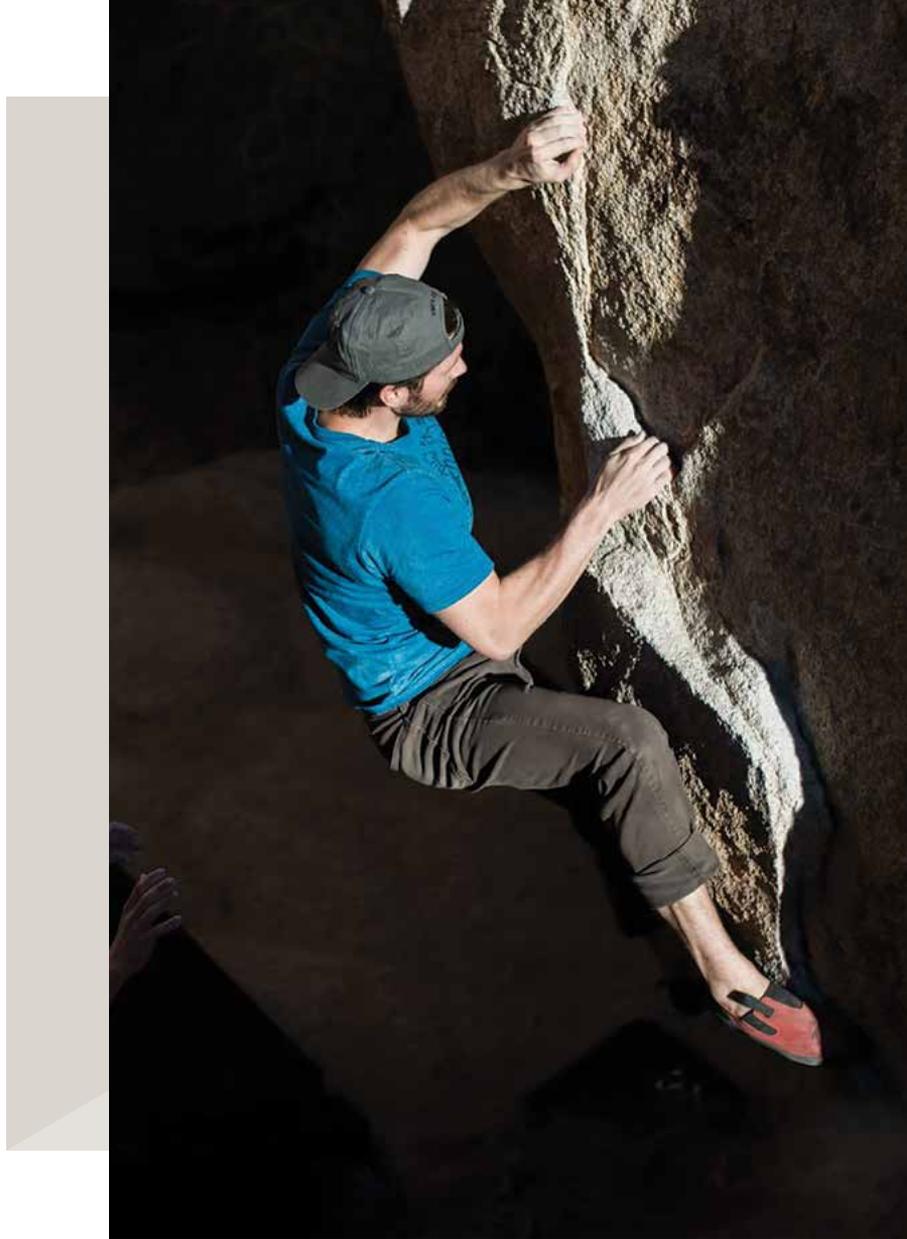
“I have a specific rehab program for shoulder and ankle injuries in which we focus on the positions and movements that climbers may find themselves in,” Hooper says, “so that their body is practiced at recruiting those muscles when they encounter stresses and strains while climbing.”

“And then with foot and ankle programs,” he continues, “much of the work involves stability training, like using a BOSU ball, and plyometric or jump training so that over time the body relearns how to land and fall.”

“As it is in most sports, proper breathing is incredibly important in climbing,” Huang observes. “Being conscious of when you should inhale and exhale in relation to engaging your core is critical to success on the wall. When you start thinking about something else, you can begin to lose touch with the situation at hand and what your immediate goal is.”

“In climbing,” Huang continues, “you’re presented with a microcosm of short- and long-term goals. Obviously you’re looking to reach the top, but in order to do so you need to progress one hold at a time and treat every move with intention. To train this, for me and my patients, I often break down complex movements into smaller pieces and focus on understanding why we move a certain way. The key to learning new psychomotor skills is repetition, but in unique and varied presentations.”

“We practice something simple, like scapular retraction, in all positions — supine, prone, standing, quadruped, hanging — before getting on the wall,” Huang says. “Then I have the climber coordinate the movement with



breath and practice it over and over until it becomes a natural sequence. It’s part of the reason I enjoy treating climbers so much — the mental game within the sport is so important, and people are motivated to learn how to improve their performance.”

Before the Climb

When it comes to injury prevention in rock climbing, “It’s important for climbers to spend at least 20 to 30 minutes being deliberate with their warm-up,” Truong says. “They should start with bigger holds to give the finger and hand muscles a chance to increase blood flow, since this will help with tissue recovery

between climbing attempts. I also recommend that climbers ‘downclimb’ some of the easier climbs, which involves using only the same holds you used to climb the route and being deliberate to lower yourself with muscle control. This lowering type of motion uses more eccentric muscle contraction — which also is good for warming up muscles without overstraining joints.”

Not surprisingly, Truong notes, “many of the climbing injuries I’ve seen have occurred in climbers who hardly warmed up — whether that was because they were squeezing in a post-work gym session after having sat at a desk all day or because they’d been

“A big part of what I do with climbers in terms of prevention is basic education — not only to avoid over-training and teach appropriate load management, but also to emphasize that it’s valuable to cross-train.”

– JASON HOOPER (LEFT)

camping in cold temperatures overnight and then jumped into their climb the next morning.”

“The biggest thing that I home in on is, the stronger you are, the better equipped to climb you’re going to be in the long run, because you’re going to have more capacity to make moves happen,” Stowers says. “You shift the stress-response curve when you build up your muscles.”

She gives an example.

“If you’re dead lifting and doing Nordic curls and hip thrusting — all these really heavy strength-based exercises — you’re building resilience in

your hamstrings that’s going to come in handy when you have to engage the hamstring during a heel hook, where you’re using the back of your heel to apply pressure to a hold for leverage.”

“A big part of what I do with climbers in terms of prevention,” Hooper says, “is basic education — not only to avoid over-training and teach appropriate load management, especially in those who are new to the sport and are prone to overdo it, but also to emphasize that it’s valuable to cross-train. Too often, people are climbing without taking steps to prevent injuries to the shoulder by improving their shoulder strength, or without working on core strength

— which not only can help prevent injuries but also can improve climbing technique.”

“Another thing we look at is mechanics,” Hooper adds. “I’ll look at external shoulder versus internal shoulder strength, and I have an evaluation tool to test that. I’ll look at the mechanics of the climber’s overhead motion, since climbers spend a ton of time reaching overhead and pulling really hard. The scapular mechanics with overhead reach and pulling — we do screens for that and identify weaknesses.”

“Leg strength is a big issue in climbers, since many of them are concerned about building up too much muscle in their lower body and adding weight that they’re going to have to pull up the wall,” Truong notes. “Because a lot of climbers neglect the lower extremities when it comes to strength training, I emphasize the need for strong glutes, quads, hamstrings, and calves.”

Schooled for the Ascent

Just as their climbing experience better equips them to meet other climbers’ needs, PTs and PTAs who climb say their professional knowledge is a big plus in their own climbing pursuits.

“I’ve been climbing for 14 years, and most of my injuries occurred toward the beginning of my climbing life — before I became a PT and knew what I know now,” Lee says. “I had pulleys pop on me a couple of times, and had shoulder and neck issues. I was climbing hard, but not particularly smart.”

Truong’s experience was similar.

“Before I was a PT, I sustained some pretty bad ankle sprains from falls,” she says. “I’m on the hypermobility spectrum, so I had a lot of tendinitis. I also had a partial rhomboid tear, and I went through a gamut of wrist and finger injuries.”

In fact, Truong says, “I haven’t had a climbing injury since I graduated from PT school. Working in orthopedics at an outpatient practice and doing a significant amount of manual therapy, I’m very mindful about protecting my hands and joints — so that I can still climb but, more important, so that I can still work.”

“The ‘stoke’ is so high within our community. There’s a lot of enthusiasm whenever anybody takes on a new route, new gear, a new technique. I’ve made so many great friends and connections. It’s the collective passion of the people that really attracts me to the sport.”

– JOHN HUANG (ABOVE)



The way Huang puts it is, “The ‘stoke’ is so high within our community. There’s a lot of enthusiasm whenever anybody takes on a new route, new gear, a new technique. I’ve made so many great friends and connections. It’s the collective passion of the people that really attracts me to the sport.”

A prime attraction to Rivera is “the puzzle of each route. It’s always satisfying,” he says, “when you’ve been struggling with a particular problem over the course of many tries and then something clicks — either because your friends are watching you and see something that helps, or because you figure it out yourself — and you conquer the puzzle. Sometimes the answer lies in working out and building strength in a particular area. Other times it’s a matter of technique — determining the best way to move and control your body. That’s the biggest appeal to me.”

“There are distinct ratings in the gym for levels of difficulty, and the progress that you see as a beginning climber is so fast,” Truong says. “You might go in and struggle on a climb, but if you just keep at it for several tries, when you come back a couple of days later you might ascend it on the first try.

“As I PT,” she says, “I now understand much more about the principles of motor learning, so I realize why and how that happens. But the way the sport is set up, you make this immensely fast progress in the first three or four months. It’s completely addicting.” ■

Eric Ries is the associate editor of PT in Motion.

Hooper concedes that he knows better than to have done some of the things he’s done in climbing. He has over-trained at times, he admits, and he’s occasionally let competitiveness overtake reason. At those times, he’s called on his professional training to fix the problems he created.

“One time, I got too competitive, fell, landed on my shoulder, and had a rotator cuff tear,” he says. “But I was able manage it myself, return to training, and be back on the wall in less than four months. I also had a finger injury that I was able to rehab on my own.”

Support Group

When you ask PTs and PTA who are climbers what’s in it for them, the word most mentioned isn’t “challenge” or “adventure” — although both are in the mix — but, rather, “community.”

“Climbers are the best community ever,” Stowers says. “From my very first day at the gym, people welcomed me. I was in a real funk at that time in my life, and they were instrumental in getting me out of it.”



Things to Think About

TELEHEALTH.
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HEALTH CARE HEADLINES

We've compiled highlights of stories published by PT in Motion News for a recap of reports related to the physical therapy profession. Because the COVID-19 situation keeps evolving, we omitted breaking news from this recap. For the most current information related to COVID-19 visit our dedicated webpage at apta.org/coronavirus.

CMS Proposed IRF Rule Keeps It Simple

In light of rapid changes being made to Medicare in response to the COVID-19 pandemic, the Centers for Medicare & Medicaid Services issued a pared-down proposed rule for inpatient rehabilitation facilities that sticks to the basics. It includes a 2.9% payment increase and elimination of physician evaluations within the first 24 hours of patient admission. The final rule would go into effect on October 1.

www.apta.org/PTinMotion/News/2020/04/17/ProposedIRFRule/

CMS Proposed SNF Rule Would Boost Payment 2.3%

A proposed rule from CMS would increase Medicare payments to skilled nursing facilities by about \$784 million in the 2021 fiscal year that begins October 1, 2020. The proposed rule includes no planned changes to quality reporting or value-based purchasing programs. The agency also stated that while it continues to gather data on how the controversial Patient-Driven Payment Model is being used – or possibly misused – by SNFs, releasing any data now would be “premature.”

www.apta.org/PTinMotion/News/2020/04/13/ProposedSNFRule/



Study: Physical Therapy Outperforms Steroid Injections for Treatment of Knee OA

A study of beneficiaries in the military health system concludes that patients with knee osteoarthritis treated through physical therapy experienced lower pain and higher physical function after one year than did patients who received steroid injections. In addition to challenging assumptions about the effectiveness of the widely used injections, the results, published in the New England Journal of Medicine, also hint at the possibility that benefits of physical therapy for knee OA may be longer-lasting than earlier believed.

www.apta.org/PTinMotion/News/2020/04/09/PhysicalTherapyVersusSteroidsForKneeOA/

COVID-19 Update: Medicare Suspends Advanced Payment Program

Citing the availability of new COVID-19-related relief money, CMS has suspended its advance payment program for Medicare Part B providers and says it's reevaluating its accelerated payment program for Part A providers. Unlike the money disbursed through a \$175 billion CARES Act Provider Relief Fund, the programs being curtailed by CMS require recipients to pay back funds received.

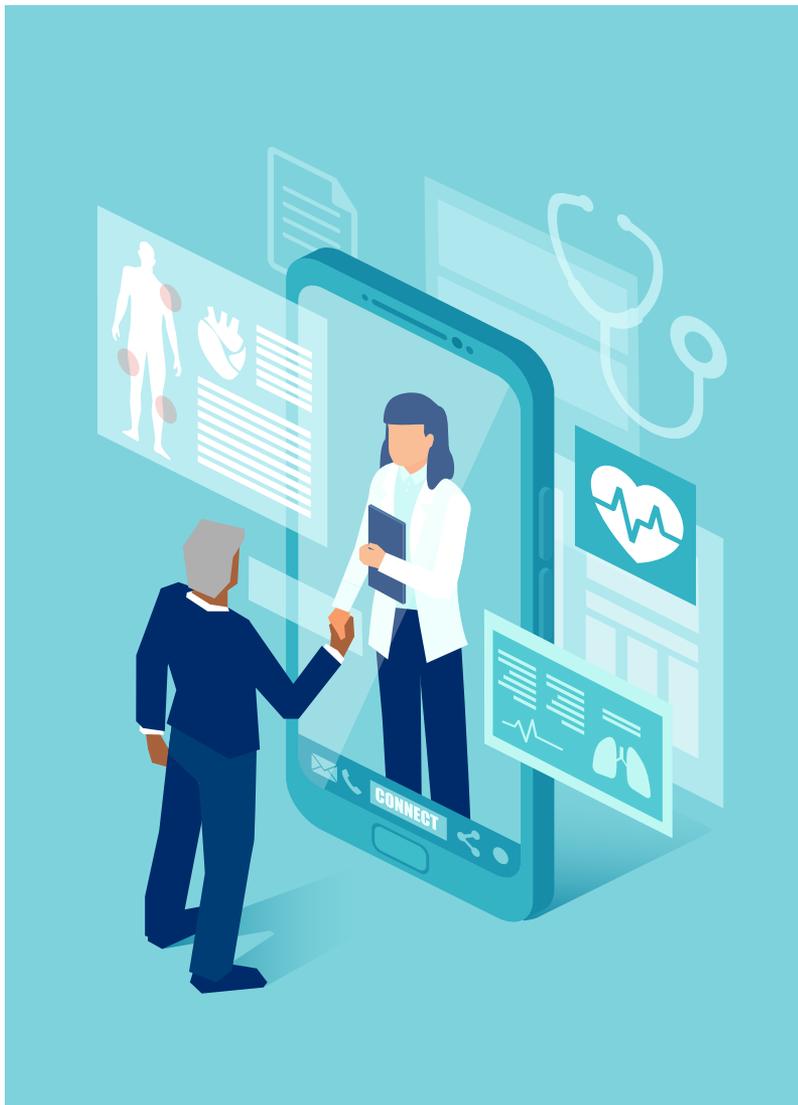
www.apta.org/PTinMotion/News/2020/4/27/CMSSuspendsAAP/



APTA LEADING THE WAY

Here are a few recent examples of the association's efforts on behalf of its membership, the profession, and society, including advocacy in response to the COVID-19 pandemic.

COVID-19 Update: PTs and PTAs in Private Practice Eligible To Furnish Telehealth Services During the Health Emergency



Recent guidance from CMS allows PTs in private practice, and PTAs under their supervision, to make full use of telehealth with their patients under Medicare Part B. Previously, only limited e-visits and other "communication technology-based services" were allowed. PTs now are permitted to bill for real-time face-to-face services using telehealth. The announcement follows a robust advocacy campaign by APTA members and staff, but as of this writing the provision is effective only for the duration of the COVID-19 national health emergency.

www.apta.org/PTinMotion/News/2020/4/30/CMSOpensTelehealth/



COVID-19 Update: APTA Provides Info on Telehealth, Licensure, and Other State-Level Changes

Have a question about what you can and can't do amid all the regulatory and payment changes happening in response to the COVID-19 pandemic? The answer probably will be the same no matter what: Check with your state physical therapy licensing board and each of your payers. APTA has added resources to its website that can help you keep track of payer changes, state emergency declarations and temporary regulatory changes, and more. The resources are available as four charts on the association's Telehealth webpage under the header "Check on the Status of State Emergency Mandates and Payers Allowing Telehealth."

www.apta.org/PTinMotion/News/2020/04/10/StateResourcesCOVID/

CMS Backs Off NCCI Edits to Common Code Pairings

No longer in effect are National Correct Coding Initiative edits that prevented reimbursement for certain activity and evaluation codes when used on the same day unless a modifier was appended to the claim. In response to APTA showing how the coding changes were hindering care and complicating payment, CMS relented on prohibitions against pairings that included, for example, therapeutic activities paired with therapeutic procedures.

www.apta.org/PTinMotion/News/2020/04/21/NCCIWin/

PTJ'S EDITOR'S CHOICE

Here's recent research of note from PTJ (*Physical Therapy*, APTA's scientific journal), as selected by Editor-in-Chief Alan Jette, PT, PhD, FAPTA.



The Impact of the COVID-19 Pandemic on Physical Therapy Research

In just one month, between mid-March and mid-April, PTJ received 15 submissions related to rehabilitation and the COVID-19 pandemic. Was Alan Jette surprised by how quickly authors rose to the challenge of this crisis?

"Yes, frankly, I was," he says. "I thought it would take longer. The submissions seemed to follow the path of the virus itself – our first submissions were from China and the Pacific Rim, the next wave was from Europe, and then the United States."

The first submissions primarily were short communications on initial responses and trends. Going forward, Jette expects case reports to dominate. "Descriptive papers will be the groundwork for understanding the trajectory of COVID-19 and its sequelae." Gradually, he says, "We'll begin to see some epidemiological studies and research using advanced designs." The focus will likely be on recovery for those who have survived the virus. "We'll see prognostic studies that try to understand who recovers well and who doesn't – what types of patients will be at risk for poor recovery and why."

He also expects journals to see more work on telerehabilitation – a topic that had already been gaining ground worldwide but now will take on even greater importance. "In fact, the first

descriptive work likely will be on telehealth interventions," Jette says, adding, "We already see big health policy changes in the U.S. related to telerehabilitation services."

Will those changes become permanent? Jette thinks it will be difficult to "go back."

He speculates on whether COVID-19 might have the same kind of impact on the future of physical therapy that polio had in the 20th century. "At the very least, this pandemic should illuminate the role and importance of physical therapist services. All indications are that rehabilitation will be critical for survivors, who may have life-changing, challenging cardiopulmonary deficits."

As was the case with the polio epidemic, Jette believes physical therapists are prepared to manage the consequences of COVID-19. He emphasizes that major hospitals already are setting up COVID-19 recovery units that are using standardized outcome instruments to get a handle on patient status, prognosis, and recovery. "This is a scary time for all of us, both personally and professionally," he says, "but it's also exciting to see the expertise of physical therapists being tapped and making a real difference. And we look forward to research that will improve the evidence for physical therapist interventions."

COVID-19 manuscripts accepted by PTJ as of press time:



- Home- and Community-Based Physical Therapist Management of Adults with Post-Intensive Care Syndrome (James M. Smith, Alan C. Lee, Hallie Zeleznik, et al)
- Italian Physical Therapists' Response to the Novel COVID-19 Emergency (Paolo Pedersini, Camilo Corbellini, Jorge Hugo Villafañe)



- The Essential Role of Home- and Community-Based Physical Therapists During the COVID-19 Pandemic (Jason R. Falvey, Cindy Krafft, Diana Kornetti)
- Impact of COVID-19 on Physical Therapist Practice in Portugal (Vanessa Alpalhão, Miguel Alpalhão)

Find these and other articles at academic.oup.com/PTJ/.

STUDENT FOCUS

APTA's student blog, *The Pulse*, is written for students, but it includes worthwhile reads for everyone in the profession. The following is excerpted from a post by Zachary D. Rethorn, PT, DPT, owner of Rethorn Physical Therapy and Wellness, a telehealth concierge physical therapist practice. He is a board-certified orthopaedic clinical specialist, certified health coach, PhD student in health promotion and wellness, and faculty development resident at Duke University.

Promoting a Culture of Health Within Business: Physical Therapy Is Key

We face a pivotal moment in the health of America – an inflection point.

Either we will change how we function as a society or we will face a growing decline in the health and well-being of Americans. Other countries continue to grow in life expectancy, while here in the United States it has begun to drop. This pattern is called the U.S. health disadvantage, and it affects all socioeconomic groups. The obesity epidemic is fueling this disadvantage – more than one in three adults and one in six children is obese, with \$150 billion in added health care costs annually.

But obesity is only part of the problem. Over 70% of all premature deaths are attributable to three factors – all of which are preventable: How we use our feet (physical inactivity), our forks (diet), and our fingers (tobacco use).

Businesses are hurt by poorer health as well. A less-healthy workforce is more expensive to insure. On the other hand, we have growing evidence from around the nation and the world that business leaders who care about health can turn that into a positive business strategy.

What we are talking about is building a culture of health in our communities.

Building a culture of health means improving American society so that everyone has the best chance to live a healthy life. All around us today we see growing imbalances and disparities between Americans with resources and those without. Health is a highly important dimension of that broader disparity. A culture of health encourages an integrated approach, where your good health and that of your family are at the center of American life.



Where do businesses and physical therapists fit in?

Physical therapists offer tremendous value in helping businesses transition to a culture of health. Many employers are integrating physical therapists into in-house treatment teams to provide the right care to the right people at the right time. Triaging and treating musculoskeletal issues quickly and effectively can decrease the cost of health care for companies and

improve the productivity and health of their employees.

Physical therapists are well positioned to assist in preventing health care needs through optimizing activity, nutrition, recovery, and overall health in the workforce. Collaborating with businesses moves physical therapists out of clinics and into communities – an essential step to meeting our vision of transforming society.

Read the full story from March 13, 2019, in *The Pulse*. [APTA.org/HealthWithinBusiness/](https://www.apta.org/HealthWithinBusiness/)

APTA MEMBER VALUE

During this health crisis, and always, APTA is committed to providing value from membership in the association.

Stay Up to Date

Official guidance and best practices continue to evolve over the course of the pandemic. APTA can help keep you informed about changing regulations, advocacy opportunities, practice guidelines, and more.



- APTA's coronavirus webpage – at [APTA.org/Coronavirus/](https://www.apta.org/coronavirus/) – curates critical advice from trusted sources such as the CDC and CMS in addition to offering resources to support you on topics from telehealth to personal protective equipment.
- Whatever temporary changes may occur at the federal level, state laws often take precedence. Review your state practice act for the latest on temporary or permanent changes that impact practice. APTA's webpage at [APTA.org/LicensureStatePracticeActs/](https://www.apta.org/licensure/statepracticeacts/) provides links to each one.
- As the health crisis begins to abate, what happens with CMS waivers that allow payment for telehealth services provided by PTs and PTAs? APTA will keep on top of expirations of temporary rule changes and continue to advocate for making permanent the changes that relax restrictions on PT and PTA services furnished via telehealth. Find out how to join the effort, and see APTA's numerous other related resources, on the association's telehealth webpage at [APTA.org/Telehealth/](https://www.apta.org/telehealth/).
- The need for disaster management can continue long after the height of a crisis such as the COVID-19 pandemic. APTA's The Role of PTs and PTAs in Disaster Management webpage outlines best practice for PT and PTA participation in disaster preparedness, response, and recovery. Find it at [APTA.org/DisasterPreparedness/](https://www.apta.org/disasterpreparedness/).



Activate and Update Your Find a PT Profile

Did you know that APTA's Find a PT directory lets you identify "telehealth" as a practice focus? As more and more consumers are aware of the benefits of using telehealth in place of in-person visits, they may seek out PTs who provide it.

If you are a physical therapist member, be sure to activate or update your Find a PT profile so consumers and referring health care providers can find you. All APTA physical therapist members are eligible to create profiles in this national database.

Find a PT is free to all APTA member physical therapists who are willing to be contacted by consumers seeking care – and it's a key feature at [ChoosePT.com](https://www.choosept.com/), which is visited by millions of Americans each year.

Use this Find a PT profile checklist to activate or update your listing:

- Indicate your practice focus areas and settings so consumers can find you.
- Ensure that your current practice location information is accurate.
- Providing telehealth services? Select "telehealth" as one of the practice focus options.
- Upload your headshot.
- Enter bio information to tell consumers about you.
- Click the box to activate your profile.

Are you an ABPTS board-certified clinical specialist? Your specializations automatically are highlighted in your Find a PT profile once you activate it.

Login to your APTA member profile at [APTA.org/MyAPTA/](https://www.apta.org/myapta/) to create your Find a PT profile or update it now. View your profile at [ChoosePT.com/FindaPT](https://www.choosept.com/findapt/).

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ITEM NUMBER: SPT20 | AVAILABLE: DEC 2019

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Bioness 15

ComfortTek 25

Currex cover 3

Foot Levelers 5, 57

Geico 19

George Washington Univ ... 33

HPSO Life Health 13

HPSO Prof Liability 57

JGL 31

Life Care 9

Lymphedivas 23

Merrithew 35

Myopain 56

OPTP 7

Otto Bock 3

Parker Labs 57, cover 4

PhysicalTherapy.com 27

RKB 37



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Vulnerability and Courage

For PTs and PTAs, the two never have been more closely intertwined.



Carrie Hall, PT, MHS, is the president and founder of Movement Systems Physical Therapy, with locations in Seattle, Gig Harbor, and Mercer Island, Washington.

Defining Moment spotlights a particular moment, incident, or case that either led the writer to a career in physical therapy or confirmed why he or she chose to become a physical therapist or physical therapist assistant. To submit an essay or find out more, contact Associate Editor Eric Ries at ericries@apta.org.

Think of this piece as both a portrait of a moment in time and a commentary on the timeless value that physical therapists and physical therapist assistants offer to society.

I'm writing this in early April. It's about why my outpatient physical therapy practice remains open in the midst of a pandemic, and how I've been making that work.

These are extraordinary times, with circumstances and directives changing by the hour. There's no way I can predict what work conditions and patient and staff safety issues will look like — here in Seattle or anywhere — when this essay is published in June. What I can say with confidence, however, is that nothing will change my love for my profession or my pride in what physical therapists and physical therapist assistants do.

Safeguarding an Essential Service

I own an outpatient physical therapy company with three practice locations. Long before COVID-19 became a household term and omnipresent source of fear, the quote describing my philosophy of life in the short biography on our website was “You cannot have courage without vulnerability.” Those words were put to a test I never would have imagined when I recently weighed the difficult decision whether to keep our doors open as the pandemic hit our area hard — making us the first epicenter of the COVID-19 crisis in the United States. I had to consider an array of

health and safety factors for both patients and staff.

What I kept coming back to is the fact that physical therapy is an essential health care service. People still are getting injured, still are in pain, still are managing chronic neuromusculoskeletal conditions, and still need our assistance to optimize their movement, remain healthy, and live their fullest life. I determined that, taking every possible precaution to protect the health and safety of our patients and staff, I would remain open to serve those in need.

Among those precautions — implemented with full appreciation that there is evidence of asymptomatic and presymptomatic spread of the virus — are:

- We are constantly receiving and adopting safety updates for outpatient clinical settings from the



“What I kept coming back to is the fact that physical therapy is an essential health care service.”

University of Washington, where I am a member of the clinical faculty.

- Via a highly visible flyer posted on our door, email communications to our patients, social media blasts, and a banner on our website, we state very clearly that if you have a fever, cough, or difficulty breathing, you must consult your physician and reschedule or cancel your appointment. In addition, we ask screening questions of all patients before we begin treatment, such as “Do you have a fever?” and “Any signs of illness?” We have infrared thermometers for use at each of our locations if anyone is in doubt.
- None of our team members come to work if they’re feeling ill for any reason. They are asked to monitor their temperature daily before leaving home. If they are sneezing or coughing, we require a physician’s approval for them to return to work.
- Patients and the provider wash their hands before and after each treatment session. We have automatic soap dispensers and single-use paper towel dispensers to minimize hand contact.

Defining Moment



- Providers wear masks and practice physical distancing to the greatest extent possible. It's very easy in our clinics because the model of care that we use is one-to-one with the physical therapist. We don't use a third person. We have built physical distancing into our treatment areas, with private rooms and tables that are 10 to 15 feet apart. Obviously, the PT can't necessarily employ full physical distancing through the entire treatment. The mask helps protect the patient during closer contact.
- Patients are instructed and reminded via text to wear a cloth mask, and are issued a mask if they lack one.
- We've removed chairs in our waiting area to maintain physical distancing of 6 feet. Tape on the floor enforces proper social distance from our receptionist. We've taken everything off our counters except tissues and hand sanitizer. We no longer use the credit card reader; we are manually inputting credit card numbers. We have sanitizer and tissues at every workstation.
- All surfaces and equipment are sanitized with Centers for Disease Control and Prevention-approved solutions for the appropriate length of time after each treatment session.
- I have been consulting with a friend who is an epidemiologist and a science writer. He recently wrote an op-ed piece regarding the use of public restrooms. The virus has been found in feces. When you

flush the commode, you aerosolize what's in it, so that's a potential method of virus transmission. In an abundance of caution, we have closed our restrooms to public use.

- Gloves are available to protect therapists when they're doing manual work or are in close contact with patients during transfers.
- All patients receive a full explanation of our treatment options (in-person, telehealth, postpone), the risks and benefits of each, and the myriad safety measures we are taking. They are required to sign an informed consent before they can receive in-person services. This is documented in their chart for each date of service of an in-person visit.

Looking at the needs of patients on a case-by-case basis, we are advising some individuals — particularly older patients and those with underlying health conditions that increase their risk of serious health consequences should they contract the virus — to stay home and move to telehealth if appropriate. In selected cases of high-risk patients who are not appropriate for telehealth, we offer an in-home visit — for example, if a patient has had a total hip replacement, is at high risk of falling, and needs in-person care. In such instances, we follow strict personal protective equipment and disinfecting procedures to best ensure patient health and safety.

What was going to be a gradual telehealth rollout this year for full implementation in 2021 became a one-week full-court press to get these

important services up and running. Given our governor's "Stay Home, Stay Healthy" order, we felt that time was of the essence. By the end of those seven days, all needed internal and external policies and procedures — including informed consent, advanced beneficiary notice, HIPAA-compliant platforms, billing, and marketing — had been implemented.

The addition of telehealth services has been a silver lining during this crisis. We have heard nothing but praise from patients who have converted to telehealth and tell us how helpful they are finding the cuing and direction in their home environment. We conduct a risk-benefit analysis to determine the best care-delivery option for each patient at that point in time. Often, telehealth is the best choice.

Even with all these precautions, I'm always weighing and reevaluating my decision to remain open for in-person visits — even when I'm trying to sleep at night. It's a huge responsibility. Again, our PTs see patients in-person only after careful analysis and mutual determination that the benefits outweigh the risks.

Naturally, our caseloads have dropped considerably, as many times the best decision for the patient is simply to wait things out. We are not generating the same rates of new patient visits due to the stay-at-home order and suspension of elective surgeries. In Washington state, employees can go on partial unemployment and receive "gap" pay without having to look for other work.

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Defining Moment

A Sliver of Light

The patients who choose to come in are extraordinarily grateful we're here. They call it their "health visit." They're thankful we remain open to help them stay physically healthy — which in turn, they say, boosts their emotional wellbeing.

The other day I treated a patient who couldn't get an injection for her severe pain from multiple-level disc herniations because of current rules postponing elective medical procedures. I provided her with manual

running the risk of exposure there. She felt far less at risk coming to us, especially given all the safety procedures we've implemented.

Yes, I'm feeling overwhelmed. But I'm reassured by the fact that we have policies and procedures in place that are proving effective. I'm constantly monitoring every situation, mindful of adaptations that may be needed to better ensure safe and effective practice. It's a fluid situation. It promises to continue to be so for a quite some time. I must go with this flow and be prepared to manage ever-changing conditions.

the demand on our hospitals — I can't completely eliminate the possibility that I, my staff, or my patients could become infected at our clinics. Zero risk cannot be guaranteed in any aspect of life. But again, it's my professional judgment that physical therapy is an essential service. In fact, it has been identified as such in national and local guidelines that include health care among the exceptions for stay-at-home orders. I feel responsible to provide essential and medically necessary care as long as I feel I can do so as safely as possible in this challenging environment.

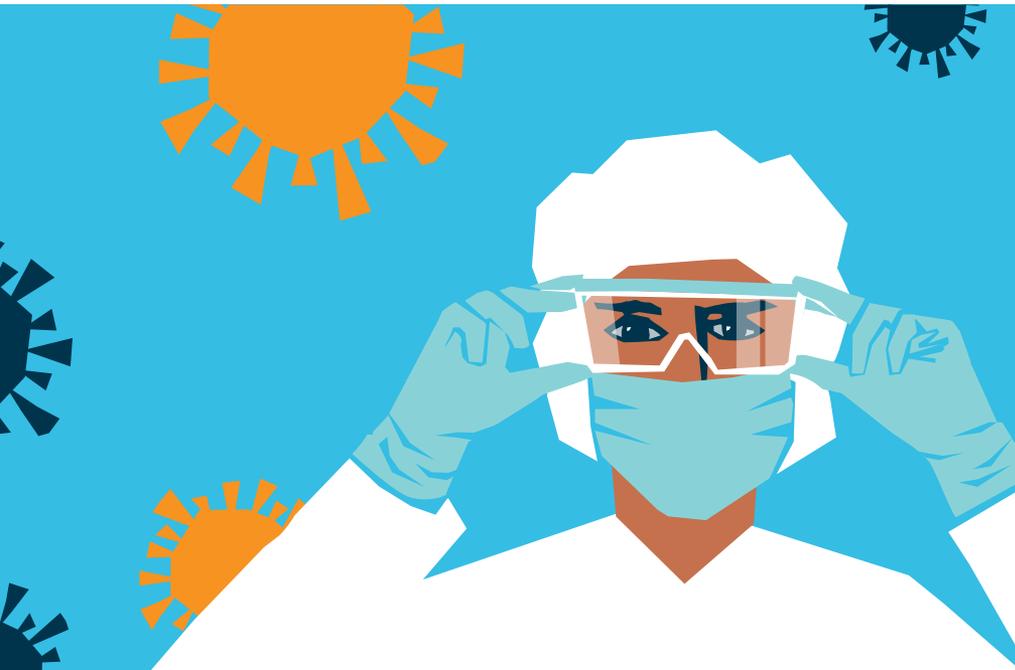
As I see it, there's a sliver of light in the current dark cloud, at least where our profession is concerned. This is the perfect moment in history for PTs who have unfettered direct access to patients and clients — as is the case here in Washington state — to inform and reassure people that they can come to us directly if they feel they would benefit from our services.

As frightening and devastating as the COVID-19 pandemic is, and as long-lasting as its effects are certain to be, we ultimately will get on the other side of this crisis. We then will be able to reflect back and see how much we learned. We will appreciate the fact that we rose to the challenge, as trusted health care professionals who weigh all the risks and benefits, then do what is best for each patient at a given moment in time.

By navigating this crisis with determination, prudence, and a spirit that honors the service of our forebears, we are solidifying physical therapy's standing as the profession that helps keep people healthy in body, mind, and spirit not only in the best of times, but also in the very worst — with vulnerability and courage. ■

therapy, we gave her a trial brace that helped her tremendously, and we sent her home with a list of exercises for maintenance. She left the building walking far more comfortably, feeling optimistic about her recovery, and literally breathing much easier. She said she did not know what she would have done had we not been open. Her biggest fear had been having to go to a hospital emergency department and

I do understand and appreciate that not all PTs feel the way I do. Some have weighed the same set of factors that I've described and have come down on the side of closing their doors. There's validity to that viewpoint. I respect it. I understand, too, that despite all of the precautions we've taken, and regardless of the benefits that come from keeping our doors open — including potentially reducing



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What's the best tip you can share for increasing your productivity?



a: Make a daily to-do list; it is a simple and easy-to-use tool that can't fail.

– ANUJ SHAH, PT, MA

a: Life happens, and sometimes stress from outside work can affect your energy, mood, and productivity at work. Leave it at the door, and put on a smile.

– MICHAEL SPILSBURY, PT, DPT

a: Do not multitask, even with all that is demanded from us at work. Focusing on more than one task at a time only leads to inadequate performance of both tasks, and the realization of not performing the task at your best sets you up for successive failures. If you really want to be productive, just do one thing at a time. The serotonin your body produces after successful completion of that task will help you stay productive.

– AMUTHA DESILVA, PT, DPT, MS.

What would encourage more people to seek physical therapist services?



a: Telling them they don't have to live with that one thing that is bothering them. It could be discomfort while gardening, urine leakage while running, back stiffness and pain, or not being able to do things they used to be able to do. Physical therapy is available in many forms to address issues from the smallest to the biggest.

– ABIGAIL MULLIGAN, PT, DPT

What qualities or benefits do you look for when seeking a position in a clinical setting or physical therapy academic program?

a: I want to know that the faculty of a DPT program are dedicated educators willing to assist me in developing strong skills.

– SARAH LINDAUR, SPT

a: In a clinical setting, I look for the ability to continue to learn and develop new skills – whether through training, a CEU allowance, or tuition reimbursement. In a DPT program, I would look for one that is built on encouraging and developing students as lifelong learners.

– MICHAEL BRENEMAN, PT, DPT



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