



## NoteWorthy

### Post-thermoforming Strategies for Reducing Shrinkage and Material Fracture in Thermoplastics

- Amanda S. Barizo, BS, CTPO and Sue E. Spaulding, MS, CPO

*“Vacuum forming, or thermoforming, is commonly used in O&P to form custom molded orthoses and prostheses.”*

**Read the full story on page 2..**

### Mentoring in O&P: Passing the Torch (and the Heat Gun)

- Joshua B. Utay, CPO, Ed.D.,

*“Hey—can you come look at this real quick?”*

*“If there is a more common way to begin a mentoring moment in orthotics and prosthetics, I have not heard it.”*

**Read the full story on page 10.**

### The Role of Hand Skills in a Technologically Evolving Field

- Phillip Call, MBA,CPO and Alex Wright, MSPO, CPO,NREMT-B

*“As a young clinician, I have often found myself on the receiving end of comments from mentors about the apparent erosion of traditional hand skills—skills once considered foundational in prosthetics and orthotics.”*

**Read the full story on page 18.**

### The O&P Assistant Education Pathway: A Potential Career Ladder

- Julie Czech , Resident Bionic P&O and Tamara Treanore, CO

*“As the first graduate from the Oakland University (OU) Orthotic and Prosthetic Assistant (OPA) Program, Julie Czech has developed several great insights into this pathway and is delighted to discuss these findings.”*

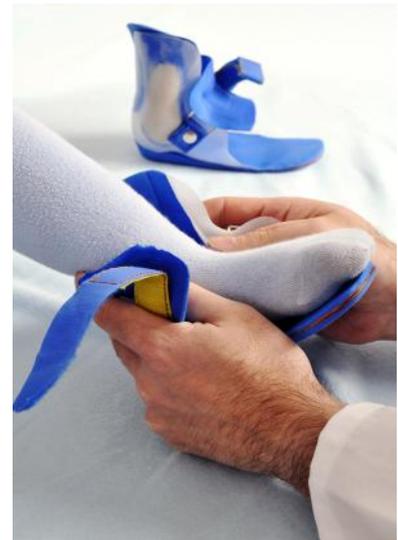
**Read the full story on page 22.**

### O&P Educators Network (OPEN)

- Julie McCulley Quinlan, MS, MPO, CPO, ATC, FAAOP

*“The Orthotics and Prosthetics Educators Network (OPEN) is a professional community designed to support and connect educators across O&P programs.”*

**Read the full story on page 25.**



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# Post-thermoforming Strategies for Reducing Shrinkage and Material Fracture in Thermoplastics

- Amanda S. Barizo, BS,CTPO and Sue E. Spaulding, MS, CPO

## About the Author



### Amanda S. Barizo, BS, CTPO

Amanda S. Barizo, BS, CTPO is the lab manager at the Division of Prosthetics and Orthotics at the University of Washington. Amanda is also pursuing graduate studies in Materials Science & Engineering at the University of Washington. She completed the prosthetic & orthotic technical program at George Brown College in Toronto, Canada and has worked in various roles in O&P, education, and the non-profit sector.

Vacuum forming, or thermoforming, is commonly used in O&P to form custom molded orthoses and prostheses. A plastic sheet is first heated in the oven at a pre-specified time and temperature. Once the plastic is ready, it is formed over a positive model using vacuum suction. There are two general types of vacuum forming used in O&P: blister forming or bubble forming and drape forming, both of which have been clearly documented. Therefore, this article focuses on the next stages in the fabrication process:

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*“...1) Optimal timing to remove the model from the vacuum system ...”*

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...to preserve dimensional accuracy;

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*“...and 2) trimming the formed plastic from a positive model, ...”*

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...emphasizing precision techniques to minimize potential material failure.

## About the Author



### Sue E. Spaulding, MS, CPO

Sue E Spaulding, MS, CPO is a certified prosthetist orthotist and graduate of the University of Washington MPO program. She currently works as an instructor in the Division of Prosthetics and Orthotics at the University of Washington. Her teaching philosophy is based on the idea that learning is often iterative, and it needs to be student-centered and clinically relevant. Sue has a particular interest in the development of decision-making, psychomotor, and clinical problem-solving skills.

## Key Terminology

**Crystallinity** – A material property which refers to the state of how molecules are arranged. Materials may be crystalline (highly ordered), amorphous (disordered), or semi-crystalline (both ordered and disordered).

**Thermal expansion** – How material changes volume in response to temperature changes, expressed as the fractional change in volume per degree of temperature change at constant pressure.

**Shrinkage** – How material reduces volume when cooling from a molten to solid state, expressed as a percentage of volume change.

**Stress concentrations / Stress risers** – A localized area of higher stress levels in a material due to a hole, notch, or sharp corner.

**Notch sensitivity** – Refers to how a material’s strength is reduced in the presence of stress concentrations and can be attributed to a material’s ductility, strength, toughness, and the geometry of the notch.

See Strategies, page 3

**Table 1.** Material Properties of Common Thermoplastics used in Orthotics & Prosthetics<sup>1, 2, 3</sup>

Material	Characteristics	Structure	Coefficient of Thermal Expansion (CTE) $(\times 10^{-6} K^{-1})$	Shrinkage (%)	Cast & Set Temperature (°F)
Polypropylene (PP)	<ul style="list-style-type: none"> <li>◆ Moderate stiffness – used for weightbearing</li> <li>◆ Blemishes easily – avoid touching surface when hot</li> <li>◆ Notch sensitive – cut circumferentially to relieve residual stress</li> <li>◆ May warp – leave vacuum on 2x melting time</li> </ul>	Semi-crystalline	100-180	1.5-2%	190
Low Density Polyethylene (LDPE)	<ul style="list-style-type: none"> <li>◆ Extremely low stiffness (flexible) – used for non-weight bearing</li> <li>◆ Creep – cold flow with sustained pressure</li> <li>◆ Blemishes easily – avoid touching surface when hot</li> <li>◆ Not notch sensitive – still, smooth edges</li> </ul>	Semi-crystalline	100-200	1.5-3%	180
Copolymer (CP) a PP and PE blend	<ul style="list-style-type: none"> <li>◆ Moderate stiffness</li> <li>◆ Creep – cold flow with sustained pressure</li> <li>◆ Blemishes easily – avoid touching surface when hot</li> <li>◆ Moderately notch sensitive – polish edges to reduce crazing</li> </ul>	Semi-crystalline	83 - 104	1.5-2%	190
PETG (e.g., Vivak)	<ul style="list-style-type: none"> <li>◆ Very stiff</li> <li>◆ Clear/transparent</li> <li>◆ Notch sensitive – avoid stress risers</li> </ul>	Amorphous	20-80	<1%	170

All information and technical data are given as a guide only and vary by manufacturer and processing method.

**Reducing Shrinkage During the Cooling Phase of Thermoforming**

Have you ever wondered why device trimlines seem short even though you have cut beyond your trimlines? Or why an AFO sometimes spreads after it is cut off the plaster model? This is due to a phenomenon called shrinkage. Thermoplastics undergo shrinkage because they expand upon heating and then shrink upon cooling. Shrinkage rates vary considering a given material’s crystal structure, vacuum holding time, and cooling rate, among other factors (i.e., extrusion direction, residual stresses) and are expressed as a percentage<sup>4</sup>. It is important to note that though most shrinkage occurs within the first 24 hours after processing, shrinkage still occurs albeit in smaller increments months to years after manufacture, depending on the type of thermoplastic<sup>5</sup>.

See Strategies, Page 4

## Strategies (continued)

### **Crystalline vs. Amorphous**

Thermoplastics, including those used in O&P, exhibit specific crystallinity or crystal structures. They exist in three structural forms: crystalline, semi-crystalline, or amorphous. Shrinkage is especially important when working with semi-crystalline materials like polypropylene, polyethylene, and copolymers. These materials have a higher coefficient of thermal expansion (CTE) when compared to PETG (amorphous), Table 1. When compared to PETG, they expand more when heated, thus inversely contract or shrink more upon cooling.

### **Vacuum Hold Time: When to turn off vacuum?**

Many O&P professionals are familiar with AFO warpage, or spread, when plastic is cut off and removed from vacuum too soon. Spread is particularly relevant for open-shaped (non-circumferential) devices such as AFOs and TLSOs, which are also typically fabricated from semi-crystalline materials and more susceptible to shrinkage. There are several vacuum hold-time 'rules of thumb' used in practice.

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*"It is common to leave the vacuum on for at least twice  
the time it took to heat ..."*

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...or until all areas of the plastic are cool to touch. Lunsford notes that it is not uncommon to maintain vacuum for up to one hour.

### **Cooling time: When to cut off plastic?**

After the plastic is formed over the model, it cools at varying rates depending on the temperatures of the room and plaster model. Semi-crystalline materials (e.g., PP, PE, and CP) become amorphous in their molten state and subsequently re-crystallize upon cooling. Therefore, controlled and consistent cooling allows for more uniform crystallization to occur throughout the plastic. Many technicians opt to slightly heat their plaster model before thermoforming to prevent the surface of the plastic facing the model from cooling at a different rate than the side facing the room. Uneven cooling can cause the plastic to spread open. Though it may speed up cooling, using bursts of compressed air cools the plastic unevenly and can lead to shrinkage differentials. It is important to note that, especially with semi-crystalline materials, this practice may introduce unnecessary internal stresses and uneven crystallization patterns in the plastic.

Lunsford stated one can reduce internal stress and warpage by waiting to cut plastic off after it has cooled to its Cast and Set temperature. This temperature is defined as the Heat Distortion Temperature at 66 psi (ASTM D648), Table 1. He also advised that polypropylene should ideally be left on the model overnight to avoid warpage. In technical literature<sup>6</sup>, 24 hours has been proposed as the appropriate time to leave thermoformed polypropylene on the plaster model before cutting it off. In contrast, Ojeda et al.<sup>7</sup> proposed that a 6-hour cooling period showed the least spread and was not statistically significant when compared to 12, 18 and 24 hours wait time. In summary, the Cast and Set temperature is a valuable indicator for when to remove plastic from the model, while six hours or longer has been recommended specifically for polypropylene.

See Strategies, Page 5

## Strategies (continued)

### Reducing *Material Failure* During Plastic Removal

After the plastic has been removed from vacuum and completely cooled, it is now time to remove the plastic from the positive model. It is crucial to remove the plastic in a careful and methodical manner to avoid material failure. Material can fail especially at notches, seams, or wrinkles and can spread easily upon any impact.

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*“Reducing the chance of material failure can be achieved by careful evaluation of the thermoformed plastic and proper use of ...”*

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...the cast saw, hammers, and chisels. Always ensure that appropriate personal protective equipment (PPE) is used.

Before making any cuts, visually inspect the plastic to identify stress risers: Look for cracks, cuts, notches, sharp corners, folds in the plastic (creased during thermoforming) or sudden changes in geometry. If you find any stress risers, drill a hole (~1/8”) at the end of the stress riser, which essentially changes the geometry from a sharp point (which creates extreme stress concentration) to a smooth, rounded feature. The hole creates a broader area to distribute stress rather than concentrated at a single point.



Image 1

After evaluating the thermoformed plastic, it is time to cut the trimlines with the cast saw. It is often helpful to remove the proximal excess plastic first by a circumferential cut (Image 1). If the plastic is too broad to fit into the bench vice, place the model on a secure surface and cut close to the top of the model to remove the excess plastic.

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*“Removal of the proximal excess plastic makes it easier to stabilize the model in the vice before cutting to trimlines. ”*

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See Strategies, page 6

## Strategies (continued)

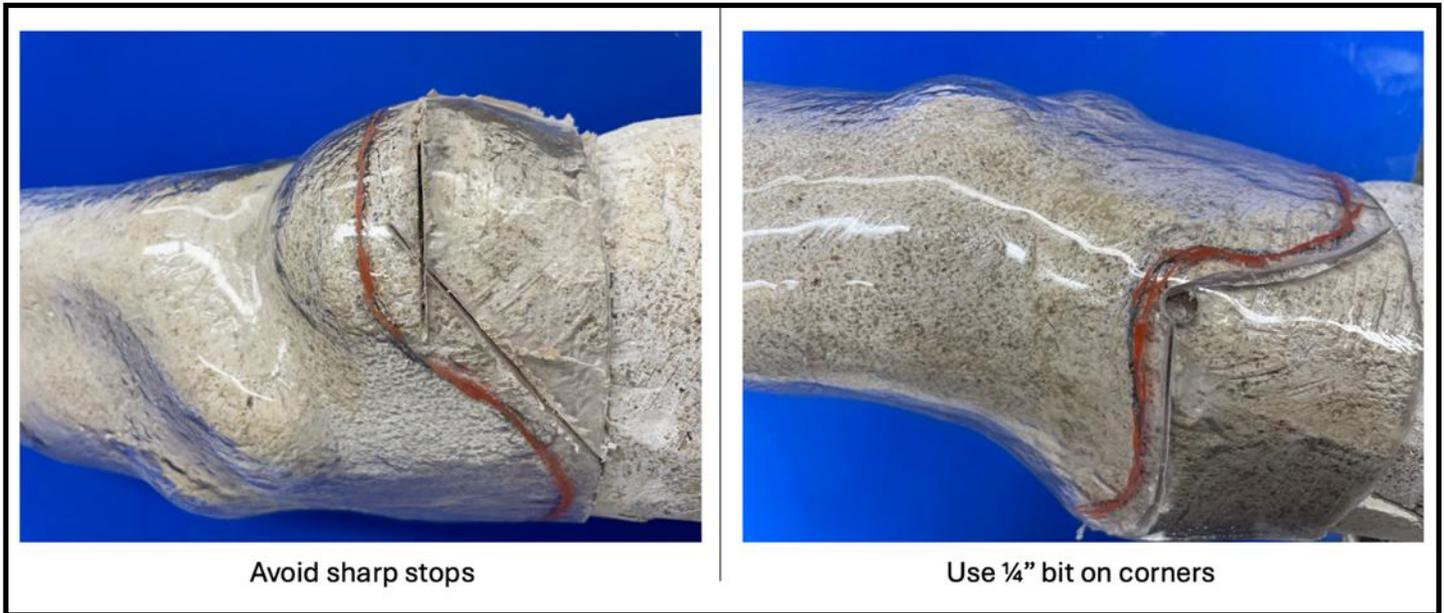


Image 2

Avoid creating stress risers when cutting around corners. For below knee sockets, it is often helpful to drill 1/4" holes just proximal to the indentations at the hamstring tendons to help reduce notches in these areas from cast saw cuts (Image 2). PETG is more notch sensitive than other materials in O&P.



Image 3

The first cut on an AFO or KAFO should be made perpendicular to the long axis of the model (Image 3). Specifically, this means making a full circumferential cut around the proximal part of the model before cutting along the longitudinal axis. Thermoforming plastic over a model creates residual tensile stresses - stresses that remain in a solid material after the original cause of the stress has been removed.

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*"Cutting circumferentially around the top of the model relieves stress in the longitudinal direction..."*

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...thus reducing much of the internal stress. Residual stress may also play a role in thermoplastic warpage, or spread, after making the longitudinal cut.

See Strategies, page 7

## Strategies (continued)



Image 4

Hold the cast saw near the blade, close enough to maintain control while still being able to operate the trigger lever (if present). This grip improves precision and stability and allows use of your thumb on the model for added support (Image 4). Make short cuts - once through the material, lift the blade out before moving to the next cut.

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*“To avoid overheating the plastic, do not drag the blade continuously through the material ...”*

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...because this action can cause the plastic to melt and adhere to the blade.

See Strategies, Page 8

## Strategies (continued)



Image 5

If sharp corners or precise cuts are necessary, consider changing to a smaller or notched blade (Image 5).

Once the trimlines are cut, it is time for “breaking out.” This procedure tends to be where material fracture occurs most frequently. Listed below are various methods to break the plaster out of the model.

- Hammering along the length of the pipe sends impact force through the pipe and into the brittle plaster. Chisels are used to directly impact and break up the plaster. That impact force also translates to the plastic. Any stress risers in the plastic will experience the impact at higher magnitudes and potentially expand.
- Pneumatic chisels can speed up the process and require extreme caution during use. They increase the debris that may cause damage to eyes and skin and create rapid impacts that can potentially fracture the plastic itself. Care must be taken to avoid placing the chisel too close to the wall of the socket.
- A rubber mallet can be used to strike the outside of the socket. Never hit the edges of the socket or areas that might create isolated areas of impact.
- If the model is cylindrical and has no undercuts, the plastic can be hit off with a hammer and block of wood or can be blown off with compressed air. The benefit of this method is that the positive model can be saved. However, this procedure must be performed with extreme caution as plastic can easily fracture, and built-up air pressure can be extremely dangerous. If using compressed air to force the socket off, avoid standing in front of the socket, as it suddenly pop off the positive model and may cause personal injury.

To summarize, though the thermoforming process has been well documented in orthotics and prosthetics, less has focused on post-thermoforming strategies to reduce shrinkage and material failure. This article has outlined commonly used materials and their properties in O&P, how material properties affect shrinkage and material failure, and offers practical guidance on this topic. Table 2 summarizes some helpful tips that were mentioned in this article.

See Strategies, Page 9

**Table 2. Fabrication DOs and DON'Ts**

Best Practices	Practices to Avoid
<ul style="list-style-type: none"> <li>◆ Always use appropriate PPE.</li> <li>◆ Know and understand the properties of the materials you are working with.</li> <li>◆ Consistently look for stress risers.</li> <li>◆ Cut circumferentially first to remove excess plastic proximally and to relieve residual stress.</li> <li>◆ Use a careful and methodical approach when breaking out.</li> <li>◆ Drill holes at corners where there will be potential stress concentrations.</li> <li>◆ Use compressed air and the pneumatic chisel with extreme caution.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Avoid plastic shrinkage by forming along extrusion direction and heating the model.</li> <li>◆ Avoid turning off vacuum or cutting off plastic too soon.</li> <li>◆ Avoid uneven cooling of semi-crystalline materials (PP, PE, CP) after thermoforming.</li> <li>◆ Avoid sharp cuts when using the cast saw.</li> <li>◆ Avoid hitting the plastic at or near stress concentrations (sharp cuts, seams, or wrinkles).</li> <li>◆ Never stand in front of the model when using compressed air to blow socket off.</li> </ul>

**References:**

1. Lunsford, T. R. (1996). *Strength of materials in orthotic and prosthetic design*. Alexandria, VA.
2. MatWeb. (n.d.). *Material property data*. Retrieved April 15, 2008, from <https://matweb.com/>
3. Professional Plastics. (n.d.). *Mechanical properties of plastic materials*. <https://www.professionalplastics.com/professionalplastics/ThermalPropertiesofPlasticMaterials.pdf?srsId=AfmBOoo7hIH4pdKb875ZwrBNF1klBeS7i1pMMrazHruxwYhax6UpoalV>
4. Covestro. (2016). *The fundamentals of shrinkage in thermoplastics* (COV00073625). <https://solutions.covestro.com/-/media/covestro/solution-center/whitepapers/the-fundamentals-of-shrinkage-in-thermoplastics.pdf>
5. Tangram Technology Ltd. (2012). *Shrinkage in plastics processing* [Plastics Topics]. <https://tangram.co.uk/wp-content/uploads/Plastics-Topics-Shrinkage-in-plastics-processing.pdf>
6. International Committee of the Red Cross (ICRC). (2015). *Prosthetics-orthotics thermoforming polypropylene (draping technique)*. In *Physical rehabilitation programme: Manufacturing guidelines* (p. 20). ICRC.
7. Ojeda, D. J., Swafford, K., Orosco, H., Rodgers, C., Davidson, M., Bains, G., & Becerra, B. (2022). The effects of cooling time on the dimensional stability of thermoforming polypropylene. *Journal of Prosthetics and Orthotics*, 35(3), 180–185. <https://doi.org/10.1097/jpo.0000000000000428>

# Mentoring in O&P: Passing the Torch (and the Heat Gun)

- Joshua B. Utay, CPO, Ed.D.

## About the Author



**Joshua B. Utay, CPO, Ed.D**

Josh Utay is an orthotist prosthetist who started his career by attending UT Southwestern's P&O Program in Dallas in the late 1990's. His early clinical career consisted of pediatric and adult O&P practice with experience in both institutional and private settings. Josh credits professional mentorship and familial support for his appreciation of the educational processes and the enormous potential that a quality education can unlock. Armed with a master's degree in education, he became a full time O&P educator in 2012 as a founding faculty member of the O&P Program at Baylor College of Medicine in Houston. Over the next decade, Josh was inspired by the transformation repeatedly witnessed as students became graduates, graduates became certified clinicians, and young professionals became motivational leaders.

Further exploration of the learning process led to a Doctor of Education in 2022 with special emphasis on training clinicians to become effective educators, too. Along the way, Josh volunteered with NCOPE as a self-study reviewer and site visitor for both technician and practitioner education programs. He also has a specific interest in exploring and developing global O&P educational capacities through his efforts with ISPO's Education Committee and Human Study e.V. He may be reached at [joshua.utay@gmail.com](mailto:joshua.utay@gmail.com).

## “Hey—can you come look at this real quick?”

If there is a more common way to begin a mentoring moment in orthotics and prosthetics, I have not heard it.

Somewhere right now, in a clinic or fabrication lab or back office, someone is asking that same question. A technician is hovering over a stubborn trimline that refuses to behave, or a clinician is puzzling over a patient presentation that does not match the textbook, or a front-office wizard is helping a new hire navigate the dark arts of insurance verification. Someone calls someone else over. And then two heads bend over a task, and something meaningful happens.

We do not call it mentoring.  
But it is.

Sometimes the most significant learning moments in O&P begin not with a formal meeting or a scheduled check-in, but with a sheepish grin and a quick, “Mind giving me your eyes on this?”

## Who taught you? Whose voice do you hear?

Let me ask you a question—or a few.

- **Who are the mentors who shaped your life?**
- **When you are alone in a room with a challenging patient or a tricky lamination or a frustrated coworker, whose voice do you quietly channel?**
- **When you face something entirely new—something school never covered—who shows up in your mind's eye to guide you along?**

We are all made of echoes.

Some come from giants in the field; some from the technician who taught you how to sharpen a knife properly; some from the office manager who showed you how to talk to people when they are scared, embarrassed, overwhelmed, or in pain.

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*“And many of the lessons that stick the deepest?  
Those came from people who never knew they  
were teaching.”*

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## A story from the early days

When I think about mentoring, I often remember a moment—not dramatic, not particularly special—that I did not realize was important until long after the fact.

*See Mentoring, page 11*

## Mentoring (continued)

I was very new in the profession, still figuring out which end of a plaster knife to point toward the cast. I was working beside a technician who had been doing this work longer than I had been alive. He could bend metal like he was peeling an apple—smooth, confident, and without wasted motion.

One day, he noticed me wrestling with a pair of bending irons. I had not asked for help; I did not want to bother him. Still, he wandered over, leaned on the counter, and watched quietly for a moment.

Then he said, “Try making *smaller* mistakes.”

That was it.

No lecture.

No correction.

No sigh of disappointment.

Just: “Try making smaller mistakes.”

At the time, I had no idea how wise that was.

Only years later did I understand he was teaching me a universal truth:

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*“...if you feel safe to experiment-and safe to fail-  
you learn faster, better, and deeper.”*

---

That technician probably never knew he was mentoring.

He was just being himself.

But decades later, his voice still shows up when I am learning something new.

### **The spirit of O&P: trial and error, safety, and craft**

When I completed my dissertation research on the culture of O&P, one finding stood out above all other findings.

**The number one-way O&P professionals said they learned—at every level, in every role, across schooling and in practice—was through trial and error.**

Let us pause there for a moment.

#### **Trial. And. Error.**

This means that skills in O&P are built on a mountain of imperfect attempts—plaster that did not set quite right, carbon layups that were one layer off, alignments that felt great on the bench and terrible once the patient took five steps.

In a profession where learning happens through doing, the *environment* in which doing happens matters more than anything else.

It is impossible—literally impossible—to learn through trial and error without **psychological safety**.

If someone believes that a mistake will be used against them...shamed, mocked, punished, whispered about...they simply will not try. They will play small. They will protect themselves. They will learn slowly, if at all.

**See Mentoring, Page 12**

## Mentoring (continued)

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*“Mentorship, then, is less about brilliant advice and more about creating that safe place where someone can take a healthy risk...”*

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...with appropriate supervision as patients are concerned, of course.

### **What *The Mentoring Guide* teaches us**

The recent book *The Mentoring Guide: Helping Mentors and Mentees Succeed* by Chopra, Vaughn, and Saint is one of the finest, clearest articulations I have seen on the subject. Though it was written with medicine in mind, **wisdom is wisdom**. Much of what works for physicians often translates beautifully into O&P, especially because both fields blend craft, science, relationship, and technical precision.

A few core lessons from the book crosswalk naturally into the world of O&P:

#### **1. There is no single “type” of mentor**

People often assume mentoring means a structured, long-term, formal relationship. But *The Mentoring Guide* emphasizes that mentors come in many flavors:

- **Career mentors** (long-term guides)
- **Skills mentors** (teach you how to do one specific task)
- **Peer mentors** (colleagues learning together)
- **Near-peer mentors** (only slightly ahead of you)
- **Situational mentors** (appear for one moment, for one need, and perhaps never again)

In O&P, that might mean:

- The technician who teaches you how to pull plastic correctly
- The clinician who shows you how to talk to an adolescent who hates h/her TLSO
- The front-desk professional who models how to de-escalate a frustrated patient on the phone
- The manager who helps you decide whether to take a certification exam this cycle or next

Some mentors stay for a career.

Some stay for a season.

Some stay for a single conversation.

And every one of them matters.

#### **2. Mentoring is relational, not transactional**

One of the loveliest ideas from the book is this:

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*“Mentoring is a professional friendship.”*

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Good mentors are curious, generous, and invested—not because they must be, but because they choose to be. The relationship is the container in which growth happens.

See *Mentoring*, page 13

## Mentoring (continued)

### 3. Mentees have responsibilities too

Mentorship is a two-way street. Mentees must:

- Show up prepared
- Ask good questions
- Following through on agreed actions
- Be honest about needs and challenges
- Express gratitude (a small but powerful practice)

This is a wonderful freeing: it means mentors do not carry the whole load, and neither are mentees passive consumers of wisdom. Mentoring takes engagement from both parties for learning to occur.

### 4. Most mentoring is informal—and that is okay

The book gives permission for mentoring to be messy.

Unscheduled.

Casual.

Brief.

Organic.

Which, I must say, sounds exactly like orthotics and prosthetics.

### Wisdom from Goldsmith: what gets in our way

Marshall Goldsmith's classic *What Got You Here Won't Get You There* is not a mentoring book, per se. But it is a book about human behavior—and

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*“...human behavior shapes mentoring more than any technique ever will.”*

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Goldsmith reminds us that even highly successful professionals have blind spots.

We all have habits that helped us early in our careers—confidence, self-reliance, speed, perfectionism— that can later become obstacles.

A few takeaways resonate strongly in a mentoring culture:

#### 1. Do not confuse telling with teaching

Being right is not the same as being helpful.

Correcting someone too fast teaches only one lesson: **Do not ask that person for help again.**

#### 2. Listening is a superpower

Goldsmith says: *“One of the most sincere forms of respect is actually listening to what another has to say.”* Mentors who listen well foster psychological safety instantly.

#### 3. Humility is strength

Anyone can give advice. But it takes humility to say:

- “Here is what worked for me—your mileage may vary.”
- “I might be wrong, but this is how I see it.”
- “What do *you* think?”

Humility turns mentoring into partnership.

See **Mentoring**, page 14

## Mentoring (continued)

### Mentoring across roles: everyone teaches, everyone learns

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*“One of the gifts of O&P is that learning happens everywhere..”*

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#### Technicians mentor clinicians

Anyone who has ever tried to learn fabrication knows that technicians hold entire libraries in their hands. There is no textbook chapter titled *How the plaster should feel when it is ready*. Only experience can teach that.

#### Clinicians mentor technicians

Clinicians bring context: gait, biomechanics, pathology, patient goals, communication strategies. They show technicians not just *what* to build, or necessarily how, but *why*.

#### Front-office staff mentor everyone

If you want to learn patience, diplomacy, time management, or emotional triage, sit with front-office professionals for half a day. They navigate more complexity in a single morning than most of us manage in a day. They model grace under pressure.

#### Assistants mentor learners simply by being steady

Clinical assistants often teach newer staff how to efficiently move through the clinic day with courtesy, timing, and small kindnesses that keep the place running.

#### Students mentor seasoned clinicians by asking questions

Sometimes a fresh set of eyes reveals assumptions we did not know we were making.

#### Educators mentor the whole profession

Educators have the responsibility, the privilege of creating the frameworks through which generations understand their craft and begin to pass it along to the future.

In short:

**Mentorship in O&P is not hierarchical. It is ecological.**

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*“We are all, both mentors and mentees, often many times each day.”*

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### A few stories from the field (composite, but true in spirit)

#### Story 1: The 60-second mentor

A new technician was struggling with a lamination layup. A senior tech walked by, paused, and said, “Try stringing your resin in multiple, varied directions instead of only parallel long strokes. Fewer pools will develop, and the fabric will hug the mold for you.”

See Mentoring, page 15

## Mentoring (continued)

Sixty seconds.  
Advice so simple, it felt silly.  
But it changed everything.  
That was mentoring.

### Story 2: The “I see you” clinician

A front-office staff member handled a difficult phone call with such kindness that a clinician stopped afterward and said quietly, “You are really good at that. I would love to learn how you do it.”

That one sentence changed how that staff member viewed h/his own worth.

That was mentoring.

### Story 3: The unintentional teacher

A resident watched a seasoned clinician greet every patient by name—and then greet their spouse or child by name too. Years later, when that resident became a residency mentor, he/she realized that the residency mentors were doing the same thing automatically.

That was mentoring.

### Practical Tips: “Try this tomorrow”

#### For everyone

- **Say “Thanks for asking me.”**  
When someone seeks your input, it is an honor—treat it as such.
- **Adopt a signature phrase that creates safety.**  
Examples:
  - “Let us look at this together.”
  - “What is your thinking so far?”
  - “It is okay if this is rough—we will sort it out.”
- **Share your reasoning, not just your result.**  
People can imitate actions, but they learn from thought processes.
- **Use the phrase “What did you notice?”**  
This query draws out insight without judgment.
- **After a minor setback, ask the learner first, “What went well?”**  
Reminding them that what we do is multi-faceted, and that not every aspect was a failure.

#### For mentors

- **Give feedback the way you would want to receive it on your hardest day.**
- **Avoid the “this is easy” trap.**  
If it were easy, they would not be asking for help.
- **Leave room for disagreement.**  
It signals respect.
- **Be precise about feedback, positive or corrective.**  
“Nice job,” is forgettable.  
“I like how you checked the alignment before you trimmed,” is gold.

See Mentoring, page 16

## Mentoring (continued)

### For mentees

- **Ask one good question per day.**
- **Invite correction.**  
“Please tell me if you see a better way to do this.”
- **Follow up.**  
If a mentor gives advice, circle back and tell them how it went.
- **Focus on seeking input from *one* primary mentor for a given project or step.**  
The “best approach” is *not* the average of all of the input given by everyone on site.  
Learning one person’s approach start-to-finish is extremely valuable.  
One may seek variation on a theme after completing the cycle with a single mentor.

### For everyone in a hurry (i.e., all of us)

- **Turn interruptions into micro-mentoring.**  
You do not need 30 minutes.  
You need 30 seconds of undivided attention.
- **Narrate your work for someone nearby.**  
Even one sentence like, “I am using Pe-Lite, not Bocklite, because...” teaches volumes.
- **Remember that people are always watching.**  
You are mentoring even when you do not realize it.

### The invisible threads that hold us together

There is a beautiful idea tucked into *The Mentoring Guide* that deserves a moment here:

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*“We are all, the sum of the mentors we have encountered and the mentees we have influenced.”*

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Think about that for a second.

Every patient you have helped, every cast you have poured, every tense conversation you have smoothed over, every 4 mm set screw you have torqued, every moment you have spent teaching—those moments ripple forward, shaping the profession.

Some mentorship is formal.  
Most mentorship is accidental.  
All mentorship is consequential.

We inherit a profession from those who came before us, and we shape it for those who will follow.

### A gentle call to action

So here is my invitation to you:

- 1) **Look back**  
Identify one or two mentors—official or unintentional—who shaped you.  
Let yourself feel grateful.
- 2) **Look around**  
Notice who might be watching you today.  
You might be someone’s model, right this minute.

See Mentoring, page 17

## Mentoring (continued)

### 3) Look forward

Ask yourself:

*“What kind of mentor—formal or informal—do I want to be in this season of my career?”*

You do not need a title.

You do not need a certification.

You do not need permission.

You just need to care enough to say, “Hey, I have a minute if you want to walk through this together.”

#### In summary

Mentoring in modern clinical practice does not require sweeping gestures, eloquent speeches, or multiyear commitments. It happens in quick glances, small nudges, thoughtful questions, and shared moments of problem-solving.

It happens in the lab.

In the clinic.

At the front desk.

In the parking lot after a long day.

At the conference booth where someone nervously says, “I have long admired your work—may I ask you a question?”

O&P has always been a hands-on, heart-forward profession.

We learn by doing, and we grow by helping each other do better.

So let us keep telling our stories.

Let us keep laughing together.

Let us keep making smaller mistakes in safer environments.

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*“Let us keep being the kind of people whose influence lasts long after we have forgotten the particular day, we offered it.”*

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Because the work we do matters.

And the way we pass that work forward matters even more.

#### **References**

Chopra, V., Vaughn, V. M., & Saint, S. (2019). *The Mentoring Guide: Helping Mentors and Mentees Succeed*. University of Michigan Press.

Goldsmith, M., & Reiter, M. (2013). *What Got You Here Won't Get You There: How Successful People Become Even More Successful*. Hachette Books.

# The Roles of Hand Skills in a Technologically Evolving Field

- Phillip Call, MBA, CPO and Alex Wright, MSPO, CPO, NREMT-B

## About the Author



**Phillip Call, MBA, CPO**

Phillip serves as the Market Director at ForMotion Clinic in Virginia, formerly known as Virginia Prosthetics & Orthotics. He earned his bachelor's degree in management and later his Master of Business Administration (MBA) from Virginia Tech, along with a Master of Science in Orthotics and Prosthetics from the University of Pittsburgh in 2018.

As a Certified Prosthetist Orthotist through the American Board for Certification, Phillip is committed to leading his team in providing innovative, patient-centered care that empowers individuals to regain mobility and enhance their quality of life.

## Introduction

As a young clinician, I have often found myself on the receiving end of comments from mentors about the apparent erosion of traditional hand skills—skills once considered foundational in prosthetics and orthotics. These remarks, shared throughout my time in the MSPO program, into residency, and now in clinical practice, often come with a dose of skepticism. Some mentors express concern that clinicians today overly rely on digital tools, and that this reliance has come at the expense of understanding the nuances and complexities inherent in older, more manual methods of fabrication.

To a degree, these critiques are understandable. There are certainly examples of newer fabrication methods, particularly from central fabrication facilities, which fall short of clinical expectations. In those cases, the clinician's dissatisfaction is justified. However, too often, these criticisms are based on narrow experiences or generalized assumptions that overlook a deeper and more significant issue: the profession's struggle to effectively integrate new technologies into clinical workflows without losing the essence of hands-on expertise and critical thinking.

## The Growing Divide Between Technology and Clinical Practice

The field of prosthetics and orthotics is evolving rapidly. Innovative technologies, digital workflows, and centralized services have transformed how devices are designed and delivered. But amid this transformation,

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*“...not enough attention has been paid to integration of these tools in a way that supports—not replaces—clinical expertise.”*

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This has led to an ongoing debate about the importance of hand skills versus the utility of new technologies. Traditionally, hand skills were considered essential to good clinical practice. They allowed a practitioner to provide timely care, make in-clinic modifications, and respond directly to a patient's changing condition. In many ways, they represented a clinician's autonomy and mastery of their craft.

Today, however, the widespread use of central fabrication and satellite offices—often with limited on-site fabrication capabilities—has reshaped that narrative. Clinicians increasingly find themselves removed from the physical creation of devices, instead acting as facilitators who prescribe and coordinate care rather than directly shaping the product.

See **Hand Skills**, Page 19

## About the Author



**Alex Wright,**  
MSPO, CPO, NREMT-B

Alex is a certified prosthetist and orthotist with a master's degree in Prosthetics and Orthotics received from the University of Hartford and completed residency with Bionic Prosthetics and Orthotics in Owensboro Kentucky. He has extensive clinical experience in lower limb prosthetics and pediatric orthotics and has been involved in the design and fabrication of prosthetic devices for a U.S. paralympic team member.

Prior to joining the prosthetic orthotic field, Alex worked in emergency medical services and hospital-based acute care systems and is a member of the National Registry of Emergency Medical Technicians. This role has provided a strong foundation in interdisciplinary communications, acute and transitional patient management, and patient rapport.

With a focus on the implementation of effective communication and shared education in both the clinical and technical aspects of his work, his professional interests include optimizing clinical processes, advancing prosthetic and orthotic technology integration, and improving long-term patient outcomes. In addition to patient-care responsibilities, Alex continues to work to improve documentation processes with the implementation of AI technologies and streamlined workflows between clinicians and technicians to improve fabrication timelines, device quality, and patient outcomes.

## Hand Skills (continued)

### Two Distinct Skill Sets: Hands-On Modification vs. Conceptual Design

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*“In many conversations about declining hand skills, two distinct competencies are often blurred together, weakening the value of both.”*

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The first is a clinician's *ability to modify, repair, and adjust* prosthetic and orthotic devices—skills that are often categorized as manual or technical. The second is the *ability to conceptualize and communicate* a device's design effectively to those who will fabricate it.

Both are crucial to good patient care, but they serve different purposes:

- **Hand Skills:** These lower order skills include actions like skiving pads, adjusting trimlines, riveting straps, or re-aligning components. They are essential for quick turnarounds, emergency fixes, and ensuring optimal fit during final fittings.
- **Design and Communication Skills:** These higher order skills involve imagining a solution based on clinical evaluation, developing a design that meets patient goals, and clearly articulating that design to technicians or fabrication teams, whether through CAD files, measurements, or modified casts.

Historically, clinicians needed both skill sets. In small clinics where clinicians doubled as technicians, design intent and technical execution were tightly aligned. But as the field scaled and demands increased, this synergy began to dissolve.

#### The Shift: From Craftspeople to Facilitators

In previous decades, clinicians were more intimately involved in fabrication. Many learned to create devices from start to finish—casting, modifying, fabricating, fitting, and adjusting. This meant that design choices were directly influenced by hands-on understanding of materials, mechanics, and patient feedback. Communication between clinicians and technicians was not just encouraged; it was built into the very structure of the clinical environment.

Today, due to increasing caseloads, shrinking reimbursement rates, documentation burdens, and expanding administrative roles, clinicians are being pushed away from technical work.

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*“The professional landscape now encourages specialization and efficiency, often at the expense of tactile engagement.”*

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## Hand Skills (continued)

In many settings, the clinician's role has been reduced to evaluating patients, ordering devices, and conducting final fittings—delegating everything else to central fabrication.

This shift has undeniably improved scalability and, in some cases, consistency. But it has also introduced a dangerous disconnect between the person who envisions the device and the person who constructs it.

### **The Risks of Disconnection**

As clinicians become further removed from fabrication, we begin to see breakdowns in communication. A digital scan or CAD file may carry basic geometric information, but it lacks the nuance that a skilled technician might infer from a clinician's in-person explanation or hands-on sketch. Design elements may be misunderstood, or fabrication constraints may not be communicated until it is too late.

In the absence of a shared language between clinician and technician, errors occur: devices arrive misaligned, poorly fitted, or lacking key features. When this happens, the root cause is often attributed to the clinician's lack of hand skills, but in truth, the problem is more complex. It stems from an evolving system that has not yet developed adequate methods to bridge the gap between traditional fabrication knowledge and new digital processes.

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*“This is not just an issue of lost skills, it is an issue of lost collaboration.”*

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### **The Value of Retaining Hand Skills**

Despite the rise of digital tools, hand skills remain critical. The ability to quickly modify or repair a device in the clinic is a valuable tool—especially when patients cannot afford to wait for shipping and refabrication. A misplaced trimline, a broken strap, or a misaligned component can all be addressed on the spot—if the clinician has the necessary skills.

Hand skills also serve as an invaluable educational foundation. A clinician who understands how a device is fabricated—who has experienced socket lamination or attached a stirrup for a conventional AFO—will be better equipped to design those devices effectively. They can better anticipate fabrication limitations and know how their design decisions will translate into physical outcomes.

Even if these clinicians do not fabricate regularly, their fluency in the “language of making” improves their collaboration with technicians and leads to better-fitting, more functional devices.

### **Technology as a Tool—Not a Replacement**

Digital tools are not the enemy of hand skills. In fact, they offer enormous potential when used alongside a strong foundation in clinical judgment and technical understanding. Tools like CAD/CAM, 3D scanning, and digital alignment systems can reduce variability and streamline workflows—but only when integrated thoughtfully.

The problem arises when these tools are treated as turnkey solutions that remove clinicians from the design process. Technology should enhance our ability to provide care, not deskill the clinician. The solution lies in developing robust systems for communication, training clinicians in both digital and manual competencies, and preserving a shared language between clinical and technical teams.

**See Hand Skills, Page 21**

## Hand Skills (continued)

### **The Need for Defined Terminology and Training**

Another critical gap in the field is the lack of shared definitions. Terms like “modification” and “design” are often used interchangeably, causing confusion. In reality, these are distinct activities requiring different skills and responsibilities. Without agreed-upon terminology and standardized training across clinical and technical domains, miscommunication is inevitable.

Educational programs must evolve to reflect this reality. Future clinicians should not only learn traditional fabrication techniques, but also develop skills in digital design, communication, and collaborative problem-solving. It is not about choosing one over the other, it is about creating a hybrid model that supports the full spectrum of modern clinical practice.

### **Conclusion**

Hand skills are far from obsolete; they are an essential component of effective, responsive, and high-quality patient care. While the profession must continue to embrace digital tools and centralized fabrication, it must do so in a way that respects and retains the foundational competencies that have long defined our field.

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*“Rather than viewing hand skills and new technology as opposing forces, we should strive to create a model of practice where they coexist.”*

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Clinicians who understand fabrication—whether through direct practice or close collaboration—will always have an edge in designing better devices and achieving better outcomes for their patients.

The future of prosthetics and orthotics will be shaped not just by the tools we use, but by how well we integrate them into our workflows, our education, and our shared language. If we can preserve the best of our hands-on traditions while embracing the possibilities of innovation, the field will not only survive—it will thrive.

# The O&P Assistant Education Pathway: A Potential Career Ladder

- Julie Czech, Resident Bionic P&O and Tamara Treanore, CO

## About the Author



### Julie Czech, Resident Bionic P&O

Julie Czech is currently a resident at Bionic P&O in Owensboro, Kentucky. She graduated from Northwestern University's Masters in Prosthetics and Orthotics program in March 2025. A Michigan native, she previously graduated in April 2023 from Oakland University with a Bachelors in Exercise Science with a specialization in Orthotic and Prosthetic Assistant Studies. During her time at Oakland University, Julie worked as an Orthotic Technician at Becker Orthopedic.

Julie has been pursuing an interest in O&P since 2017 when her cousin was diagnosed with osteosarcoma and received a right transfemoral amputation. Seeing her cousin experience the highs of accomplishing new tasks while surmounting the struggles that also existed inspired Julie's personal goal to make a difference in patients' lives. Her goal is to be a knowledgeable and trusted partner with every patient, supporting their achievements as well as the challenges they experience.

Julie is passionate in giving her time, skills, and effort to those in need. She has volunteered with the Range of Motion Project (ROMP) in Quito Ecuador, helping fabricate and provide prostheses to patients who would not have received care if not for ROMP. She has also served on multiple mission trips in the states and internationally, where she served communities, teaching, providing religious support, and giving resources such as clean drinking water.

In her free time, Julie enjoys biking, reading, completing puzzles, competing in recreational sports, participating in Bible studies, keeping her puppy entertained, and learning to ride a unicycle.

As the first graduate from the Oakland University (OU) Orthotic and Prosthetic Assistant (OPA) Program, Julie Czech has developed several great insights into this pathway and is delighted to discuss these findings.

Julie wanted to be an assistant when the program was instituted in 2020 because a family member had a transfemoral amputation due to osteosarcoma in 2018. This interest was previously validated by a career test she took in middle school that matched her skills and personality to a career as a prosthetist/orthotist. She shared what was a harsh reality check when she started the OPA program. "I was 18, and I had no clue about what I was doing. I had no hand skills, no confidence, and no peers in the program. Yet I knew the OU program offered a chance to be involved in the field I was very interested in and provided a framework to achieve the dream I had in mind," she shared.

Unless you have a personal connection to the field of O&P, very few people know about this specific field of study. This lack of knowledge can be attributed to the fact that the O&P field is much smaller and less well known when compared to other healthcare professions, such as physicians, nurse practitioners, physician assistants, physical and/or occupational therapists. Even those working in the healthcare field have varying degrees of awareness about the knowledge base and hand skills required for different roles in the orthotic/prosthetic field, including the technician, assistant, and clinician. As an entering student in the OPA program, Julie was somewhat unaware of the various roles involved in patient interactions in O&P.

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*"The ability to enter a niche field through an easily accessible pathway is invaluable to introducing new professionals, which is exactly what the OU OPA program does."*

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As she progressed through the OPA program, Julie gained an abundance of knowledge using classroom materials and equipment, as well as working directly with patient models. The OU OPA program requires scientific and health classes Intro to Psych, Nutrition, Physics, Chemistry, Biomechanics, A & P and Medical Terminology, which allow students to develop the clinical and analytical skills that are used when observing and working with patient models in O&P specific courses. These concepts build the foundation of common O&P pathologies, their progression, and common interventions, which are then expanded upon in the specific O&P coursework. The technical skills needed for appropriate interventions are integrated into the program, requiring use of commonly used O&P lab machines, and field specific tools. In multiple classes, fabrication, coupled with the fitting of different devices for patient models, is practiced.

See Ladder, Page 23

## Ladder (Continued)

### About the Author



#### Tamara Treanore, CO

Tamara Treanore, CO is a certified orthotist, graduating from Northwestern University Prosthetics-Orthotics Center in 1992. For many years, she practiced as a general clinician with a strong focus on TBI, the post-polio patient population and stroke patients. Her work with these patient populations prompted a greater interest in the challenges these patients faced with orthoses applications and initiated Tamara's interest in the technical side of the orthotics/prosthetics industry.

Tamara worked at [Baker College Orthotist Prosthetist Technician Program](#) for seven years, updating curriculum while increasing the students understanding of patient needs and orthoses design. When Baker College Orthotist Prosthetist Technician Program closed in 2018, she accepted a position at Oakland University in Rochester, Michigan to develop the Orthotist Prosthetist Assistant program curriculum and labs. Tamara is the acting program director and advocates extensively for the role of assistants in O & P as well as all other care extenders aligned with patient care outcomes and clinician support.

Tamara volunteers on the NCOPE Academic Accreditation Services Committee for the updating and revision of the Technician Standards, Clinician Standards, and Assistant Standards. She is also a reviewer on the Self Study Review Committee. Tamara has presented at MOPA on the roles of care extenders in O & P as well as on clinician burnout/solutions. She also acts as an ambassador promoting a career in orthotics and prosthetics at local high schools, career fairs, STEM, and similar gatherings.

In her spare time, Tamara does lapidary, woodworking, rock hunting, Tang Soo Do karate and whatever else appeals to her creativity.

The OPA program has mandatory classes including Clinical Assessments as well as Patient and Practice Management. Understanding and utilizing appropriate clinical assessments and tools creates the groundwork for clinical settings. The structured coursework also allows acquisition for professional documentation skills. Julie shares that having access to specific hands-on equipment and use of patient models increased her confidence. Julie stated that she was able to transfer these acquired skills into employment as a medical assistant at a local urgent care with Becker Orthopedic as a technician. It was during this period of time when Julie decided she wanted to pursue a master's degree and become a clinician in this field.

Although Julie planned to continue her education to become a clinician, she took the ABC exams after graduating from the OU OPA program and became a Certified Prosthetic-Orthotic Assistant (CPOA). Some students in the program chose immediate employment as an O&P Assistant after successfully completing the ABC exams. Julie felt the desire to do more and possessed the foundation to be successful in the master's program. She shared "What I discovered was that my education in the OPA pathway, interactions with patients, and experience as a technician developed an extremely sound basis for success in the Northwestern University Prosthetics and Orthotics master's program."

The assistant program at OU is not the pathway every individual will be able to pursue, but Julie stated the knowledge and skills she learned were absolutely crucial for her successes in the master's program. An alternative pathway for those desiring to become an O&P Assistant without attending an OPA program permits students to take science courses (Anatomy, Physiology, Medical Terminology, Physics) at local accredited colleges while acquiring 900 - 1800 hours of supervised patient care prior to testing for ABC certification as an Assistant.

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*"The O&P technician,..."*

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...who as already developed the technical skills needed and wishes to move into the assistant's role,

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*"...has a greater opportunity to be successful if their employer provides opportunities for learning and growth."*

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## Ladder (Continued)

While Julie shares that “The structure of the OPA program provided me with very specific skills and knowledge to be successful in the field,” this can be a challenge for an individual who does not receive an OPA education to acquire the broad base of exposures that will benefit the employee as well as the employer. However, if employers provide structure, support, and tangible learning, the outcomes are mutually beneficial.

Julie adds “As far as my role, both as a certified assistant and in my residency program post-master’s degree, I can see great value of an assistant in a clinical setting. I have spoken with other professionals in the field who have little knowledge of what the assistant role entails and how they can be successfully utilized in every practice.”

The O&P profession should support the progression of skills for dedicated and talented individuals no matter what level of training is achieved. A technician who shows interest in becoming an assistant should ideally be given access and support to obtain the required education. An assistant who shows interest in becoming a clinician should have access and support for the same.

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*“The employer benefits from developing these individuals and retains a quality professional staff as well as developing a well-trained and diverse business.”*

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The O&P field is very intertwined, and the individual professions are dependent upon the other. The assistant acts as a care extender for patient access, expanding company exposures and can definitively impact on clinician burnout. The technician has mastered the hand skills to efficiently and professionally fabricate the orthoses and prostheses that the clinician has requested for the patient’s needs and improves turnaround time, improving patient outcomes and increased company profits. The primary goal of all these professions is assisting patients to achieve the highest level of mobility, quality of life and maximal ADLs. Therefore recognizing, valuing, and developing all O&P roles (technician, assistant, clinician, fitter, and pedorthist) is crucial for success of the orthotic/prosthetic profession and businesses in this field.

**See O&P Educators Network (OPEN), page 25**

## O&P Educators Network (OPEN)

- Julie McCulley Quinlan, MS, MPO, CPO, ATC, FAAOP

### About the Author



**Julie McCulley Quinlan,  
MPO, MS, CPO, ATC,  
FAAOP**

Julie serves as the Associate Director for Drexel University's Orthotics and Prosthetic program. She has a Master of Prosthetics and Orthotics degree from Northwestern University and a Master of Athletic Training degree from Ohio University. Julie is also engaged in many volunteer activities, demonstrating her commitment to advancing the field and supporting adaptive individuals.

The Orthotics and Prosthetics Educators Network (OPEN) is a professional community designed to support and connect educators across O&P programs. One of OPEN's core functions has been sharing timely, relevant resources from professional organizations such as NCOPE, ABC, AAOP, AOPA, and others. By circulating updates on policy changes, education and residency standards, and educational tools,

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*"...OPEN helps educators stay aligned with the broader direction of the O&P field."*

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This regular exchange of information helps reduce the burden on individual instructors to track updates independently.

Meetings are typically held 2-3 times per year both in-person and virtual, providing a dedicated space for educators to discuss challenges, identify common obstacles, and collaborate on solutions. Whether navigating curriculum changes, accreditation expectations, or clinical education concerns, the network serves as a forum where educators can learn from each other's experiences. OPEN also offers educators the opportunity to present a collective voice on issues affecting both academia and the profession as a whole.

As we move into a new year,

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*"...the first goal for OPEN will be to connect both new and experienced educators through informal mentorship, resource guidance, and shared best practices ..."*

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...to help early-career educators gain the confidence and tools they need to succeed in academic roles.

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*"The second goal is to improve OPEN's support for O&P Assistant and Technician programs..."*

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...by appointing a representative from one of these programs as Co-Chair,

ensuring their unique needs and perspectives are accurately represented. This added leadership representation will improve communication and collaboration across program types and reinforce OPEN's commitment to supporting the full educational pathway within the O&P profession. Through these initiatives, OPEN will continue to strengthen our community of educators, improve collaboration across programs, and increase engagement with the shared goal of improving education for the students we serve.