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Living Well with Limb Loss

ISSUE #21

JASON Lucci Grateful for Fickle Fortune

> 5 Things to Stop Doing Socket

Science Convention and Innovation

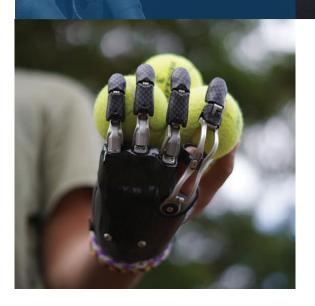
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Jason Lucci Grateful for Fickle Fortune



Socket Science Innovation and Convention

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#### WELCOME

#### *"I look upon every day to be lost, in which I do not make a new acquaintance."*

- Samuel Johnson

Air travel can be a problem for me. As a body-powered-prostheses-wearing double arm amputee, I need room to function. There isn't enough. The best I can do is reserve a "right-arm-aisle" seat.



thrive founder and publisher, Jeff Tiessen

What are the chances that someone with the same situation sits down in the seat next to me? It happened. Recently actually. Right arm amputee Mark plops down to my left with his wife settling in beside him. Two hundred seats on the plane... there'd be a mathematical equation to answer "what are the chances?" but it's beyond me.

Granted, we weren't exactly strangers. We spotted each other in the airport and as most amputees do, we made our acquaintance quickly and unabashedly. Mark and his wife were in Central America on a prosthetic humanitarian trip, lending a hand to his prosthetist. My mission was more about a book, a beer and a beach. Not quite as lofty as my amputee brother Mark.

It's a special connection usually, arm amputees happening upon one another that is. We – arm amps – are the minority shareholders in the company of amputees... maybe just 10 to 15 percent of the entire limb loss community.

Conversations ignite comfortably and casually and rarely get to "how did you lose…?" until much later. We explore each other's outer workings – our mechanics – then dip into a couple of functional questions before inevitably ending on bread bag tabs.

Mark's wife had a chuckle when we got to the bread bag tab topic. "Forget it," we chimed in together about putting the tab back on the bag. "Fold the bag under the bread and push it against the kitchen counter wall." And toss the tab on top for anyone feeling so inclined to put the plastic piece in its purposeful place."

Mark, a middle-aged guy like me, brought up how important chats like ours were to him, particularly 18 years ago when he lost his hand. We agreed that they're still important. The amputee community is an incredible resource at all of our fingertips... wherever we find it, and whatever the chances it finds us.

Jeff Tiessen, publisher • jeff@thrivemag.ca

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#### thrive Living Well with Limb Loss

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#### TAKE NOTE

## LEST WE FORGET

#### By Lillian Knoops, Stittsvillecentral.ca

Eight-year-old Isla McCallum, an energetic young girl with a big smile, and Charlie Jefferson, 98, a veteran of the Second World War, share something special: they are both amputees.

Jefferson served as a Lieutenant with the Queen's Own Rifles Regiment. He was injured by an anti-personnel landmine explosion in Germany in 1945, resulting in the loss of his left leg below the knee. Upon his return home he joined The War Amps, which was started by First World War amputee veterans to help each other adapt to their new reality. Years later these veterans established the Child Amputee (CHAMP) Program, which provides young amputees, like Isla, who was born a left arm amputee, with financial assistance for prosthetic limbs and the peer support of fellow amputees.

It was through The War Amps that Isla and her family heard about Mr. Jefferson. For Remembrance Day, they visited him at his Ottawa residence.

Isla was interested to learn about Jefferson and the medals he earned for his service. She described Mr. Jefferson as a role model who made her feel proud to be an amputee. Isla's mom, Jamie, said that it was important for her daughter to understand the sacrifices that many Canadians made for our freedom. "Mr. Jefferson and others risked their lives so that we could live in a better world. And because of their work [at home], child amputees have the resources they need to be active, independent, and confident. It's a wonderful legacy!"



Second World War Veteran Charlie Jefferson shows young Isla McCallum his prosthesis.



## Tax Time

Revenue Canada has tax credits for Canadians with disabilities regardless of age or income level. There are two criteria that need to be met. You need to have a disability recognized by a medical practitioner and you need to have a taxable income. If you have an impairment but not a taxable income, you can transfer credits to a supporting relative. Visit https://canadiandisabilityadvocates.com for more information.



## PARA-ROCKET MAN Going for Space Diversity

#### By Thomas Adamson, Associated Press

The European Space Agency (ESA) made history recently by selecting an amputee to be among its newest batch of astronauts – a leap toward its pioneering ambition to send someone with a physical disability into space.

John McFall, a 41-year-old Briton who lost his right leg when he was 19 and went on to compete in the Paralympics, called his selection "a real turning point and mark in history."

ESA is committed to bringing diversity to space travel... the first time that a space agency has endeavoured to embark on a project like this.

McFall will follow a different path than his fellow astronauts because he will participate in a ground-breaking feasibility study exploring whether physical disability will impair space travel. Speaking with pride amid flashes of emotion, McFall said that he was uniquely suited to the mission because of the vigour of his mind and body. "I'm very comfortable in my own skin. I lost my leg about twenty-plus years ago... hardships in life have given me confidence and strength and the ability to believe in myself."

The study will last two to three years and examine hurdles for a para-astronaut like how a physical disability might impact mission training, and if modifications to spacesuits and aircraft are required. It will be at least five years before McFall goes into space as an astronaut — if he is successful.

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Photos by Tilly Nelson, www.tillynelson.com

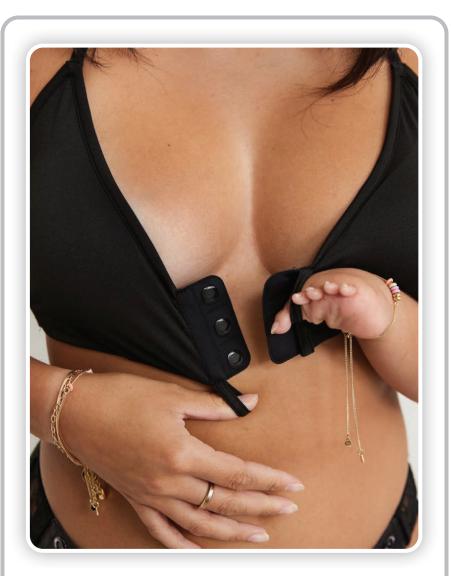
## Let's Get Real

When you give disability and diversity a seat at the table, you hear one resounding message: representation matters.

"Normalization changes everything," says Katie MacMillan, co-founder of a new talent agency called Kello Inclusive. "Reallife representation matters because when a person sees themselves represented fully and fairly in the world they live in, they know they matter," she says, adding that "they know they are worthwhile, and they know for certain that they are not alone."

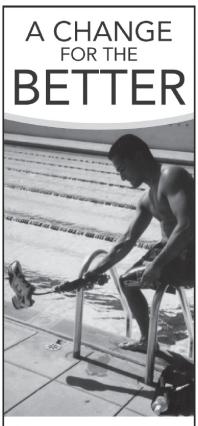


Kello Inclusive is a talent agency exclusively representing visibly different talent. "The beauty of disabilities, diversities, and differences deserves to be represented fairly and fully," emphasizes MacMillan. "But professional representation is lacking – and we want to change that." *For more, visit https://www.kelloinclusive.org.* 



## LIBERATING FASHION

At Liberare, designers are proving that "Adaptive Can Be Sexy, Too." The company is impacting the fashion industry by making dressing easier for disabled women and able-bodied allies as well, while empowering confidence in the skin they're in. "Since traditional bras and underwear can be difficult for many women to put on, Liberare set out to create a line of intimates that's both fashionable and functional," says company founder Emma Butler, who became aware of adaptive apparel through her mom who was diagnosed with a chronic illness when Emma was 12. *Check out Liberare's apparel collection at https://liberare.co.* 



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## TRUE COLORS CONCERT Reaches Global Audience with Message of Inclusion

True to its message of inclusion, the True Colors Festival Concert 2022 was livestreamed globally, allowing audience members to join from across the world.

With Katy Perry as its special guest, the concert delivered over 2.5 hours of high-energy entertainment and emotion for two nights. Many in the audience were brought to tears as almost 100 artists, many of whom live with a disability, took to the stage with talent, showmanship and the message that we are all 'One World, One Family'.

The True Colors Festival is a long-running international festival of performing arts presented by The Nippon Foundation, a longtime supporter of the rights of people with disabilities. The Foundation is a proponent of an inclusive society that empowers people of all abilities to live their lives with dignity and pursue their dreams.

While showcasing the extraordinary talents of singers, dancers and musicians of diverse abilities, the concert also gave audiences a peek inside the everyday lives of some of the artists through short films interspersed with live performances. The vignettes were inspirational messages from the artists, including the performers representing Canada... amputees Adrian Anantawan and Alvin Law.

Anantawan, a violinist, holds degrees from the Curtis Institute of Music, Yale University and Harvard Graduate School of Education. As a violinist, he has studied with Itzhak Perlman, Pinchas Zukerman and Anne-Sophie Mutter. He has performed extensively in Canada as a soloist with the Orchestras of Toronto, Nova Scotia, Winnipeg, Saskatoon, Montreal, Edmonton and Vancouver.

He has also presented feature recitals at the Aspen Music Festival, Weill Recital Hall at Carnegie Hall and the White House. Memorable moments include performances for Pope John Paul II and the late Christopher Reeve, representing Canada as a cultural ambassador for the 2006 Athens Olympics, and being a featured performer at the Vancouver 2010 Winter Olympics Opening Ceremony.

Alvin Law was a successful disc-jockey on a mid-market FM Radio station in Regina in 1981. When that door closed, it opened another to an incredible journey into the world of motivational speaking! He has shared his messages with over 2,000,000 people on five continents at over 7,500 events.

Law has rare credentials. He's a Certified Speaking Professional, a designation owned by less than seven percent of professional speakers worldwide. He is a best-selling author, an Emmy award winner and the subject of several award-winning, nationally broadcast documentaries. His unique fusion of storytelling, musical performances (a world-class multi-instrument musician) and down-to-earth humour connects with audiences at an intense and individual level.





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## **5 THINGS TO STOP DOING**

When You're Struggling and Feeling Drained

By Lori Deschene

"There is nothing in nature that blooms all year long, so don't expect yourself to do so either."

~Unknown

Recently I've been spread incredibly thin, and, at times, I've felt stressed to the max.

To be fair, there's also been a lot to enjoy and appreciate, and I know I am incredibly fortunate to have the opportunity to do so much. But life has felt somewhat pressure-filled as of late, and along with many small wins have come many hours and days when I've felt drained and defeated.

I recently realized that my best days all have certain things in common — little things I choose to do for my well-being, and a number of unhelpful habits I resist the urge to indulge. If you're also struggling, personally or professionally, and feeling drained, perhaps my lessons will be helpful to you too.

#### 1. Stop comparing your struggle to anyone else's.

Over a year ago an old friend of mine was diagnosed with breast cancer. She's the same age as I am, and she's someone I've long admired, even though we've fallen out of touch beyond occasional interactions on social media.

She's left unfulfilling jobs, despite the financial risk involved. She's walked away from relationships that weren't right for her, even while engaged, when it would have been easier to stay. And she's jumped out of more than 100 planes, each leap representative of the courage that guides her every inspiring and bold life choice.

She's faced cancer with the type of bravery I've come to expect from her, coupled with an honesty and vulnerability about her fears that, to me, displays even more strength. But still, I know it's been grueling.

As I sit here in my own very fortunate circumstances, I often tell myself I have no reason to be struggling. My current experience couldn't even be termed a struggle compared to what she's been through. I should just suck it up when I'm having a hard day and push myself through any tiredness or discomfort. Because I'm lucky.

But the reality is, I still have hard days dealing with a host of fears

and physical symptoms that require my compassion.

I wouldn't compare my hard days to her devastating year there's clearly no comparison — but the point is, I don't have to. I'm allowed to experience the feelings and struggles associated with my current life circumstances even if someone else's are far more tragic. And so are you. Many may have it "worse," but why compare and judge? Two people can have completely different situations, and both can need and deserve compassion equally.

#### 2. Stop focusing on things that aren't priorities.

When we're going through a tough time, we need to get extra-discriminating about what truly matters and what doesn't. If we exhaust ourselves with the non-essentials, we'll have little energy for the things that can actually move the dial in the areas of our life that most need our attention.

I remember when I had surgery years back. I knew I needed to take it easy or else I'd prolong my healing, but I also felt the overwhelming urge to maintain order





in my environment. I'm a control freak. It's what I do.

I remember a pair of shoes next to the door, where shoes didn't usually go, and not only that, they were askew. The horror!

I was one day out of surgery, my lower stomach stitched together, yet I still felt the need to slowly lower myself so I could put those shoes in the closet — even though it was painful to do so. My mother, who was visiting to help me, pointed out the insanity, and I knew she was right.

I now think of those shoes whenever I am struggling physically or emotionally, and I ask myself, "what else really doesn't need to be immediately done, or do I not actually have to do myself?"

Can the dishes wait until the morning? Or can I get someone else to do them? Does every email in my inbox need a response—and immediately? Can I say "no" to some requests? Can I simplify my daily routine? What do I really need to do for myself, physically, emotionally, and professionally?

Scaling back can feel like failure, especially if you're Type A, like me, but sometimes we have to prioritize so we can use the limited energy we have wisely. If we don't, we risk busting open our "stitches," whether that means physical burnout or an emotional breakdown, and then we set ourselves back even further.

#### 3. Stop expecting yourself to do what you could do before.

Maybe you were far more physically active or productive before (I know I was). Or you were the person anyone could call any time, any day, whenever they needed an ear or a hand. Or you were everyone's go-to person for a night out when they needed to blow off some steam.

It's easy to cling to our sense of identity when we feel it slipping away. Not only do we mourn who we used to be, fearing this change may be permanent, but we worry other people may not like this new version of ourselves—this person who's far less fun or far more needy.

But the thing is, we're not who we were before. We're in a new chapter, facing new circumstances and challenges, and our evolving needs won't go away just because we ignore or neglect them.

I'm not going to sugar coat this: It just plain sucks when you can't do the things you once enjoyed. It's natural to grieve losses, temporary or permanent, big or small, but eventually we need to accept reality and then ask ourselves, "How can I work with the way things are instead of resisting them?" Otherwise, we cause ourselves a lot of unnecessary stress — and it doesn't help or change anything.

#### 4. Stop pushing yourself when you need to take it easy.

We all do it, or at least I suspect we do. We minimize our physical and emotional needs because we judge ourselves for having them. We think we should be able to do more. Maybe because other people in similar situations are doing more. Or because we just plain expect a lot from ourselves.

But the thing is, telling yourself you shouldn't be exhausted doesn't





make you better able to function through your tiredness. Demeaning yourself for needing a break doesn't make you any more productive or effective. And belittling yourself for feeling whatever you feel doesn't immediately transform your emotions.

If you're tired, you need rest. If you're drained, you need a break. If you're hurting, you need your own compassion. And nothing will change for the better until you give yourself what you need.

I get that we can't always instantly drop everything to take good care of ourselves, especially when other people are depending on us. But we can usually create small pockets of time for self-care by alleviating our self-imposed pressure and prioritizing our needs. Sometimes, small things can make a big difference.

It's tempting to push ourselves, especially if this has been our pattern. But some days aren't for moving forward. They're just for honouring where we are.

#### 5. Stop reminding yourself of how you're "falling behind."

I think it all boils down to this. When we minimize our struggle, try to do too much, and push ourselves despite our desperate need for self-care, it's generally because we're afraid we're somehow falling behind.

We think about everything we want to accomplish, everything we believe we need to do in order to become who we think we should be, and we panic at the thought of losing momentum.

We also live in this constant bubble of comparison, as if we need to keep up with everyone else in order to make the most of our lives.

But none of this is true. While we may want growth and change, we don't need it in order to be worthy or happy, and certainly not on a pre-determined timeline. We also don't need to keep up with anyone else because we're never behind; we're simply on our own path.

Most people would agree that some of their most immense growth came from their greatest challenges. I would never have guessed, during the ten-plus years I struggled with depression and bulimia, how profoundly my pain would shape the trajectory of my life and lead to new chapters that were exciting and fulfilling.

Wherever you are right now, be there fully. Accept it. Open up to it. It's only when we accept the lows, that we're able to grow through them and rise to the highs.

Whatever you're going through, I wish the same for you: self-compassion to help alleviate your pain, permission to do only what you reasonably can, and space to take good care of yourself.

This article was published at www.tinybuddha.com. For daily wisdom, join the Tiny Buddha list at www.tinybuddha. com. You can also follow Tiny Buddha on Facebook, Twitter and Instagram.

#### **ABOUT THE AUTHOR:**

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Buddha's Inner Strength Journal, and co-founder of Recreate Your Life Story, an online course that helps you let go of the past and live a life you love.



## JASON LUCCI Grateful for Fickle Fortune

Jason Lucci feels very fortunate. Not because the pasta-making machine that took his hand didn't take more. And not because his amputation veered his life in a better direction. It's much more practical than that. Family, fortitude and funding are things that he is grateful for, and feels fortunate to have had as his recovery pillars.

**By Jeff Tiessen** 

Maybe something else that he feels fortunate about is the opportunity he has been given to help others – less fortunate amputees – on their journey. After finding his own help on several U.S.-based Facebook groups, Lucci moved toward offering peer support quite quickly. He teamed up with a fledgling group in Toronto to create what is now the highly-respected Amputee Coalition of Toronto. And so was born his passion to help other amputees... and simultaneously, himself too.

Lucci lost his right hand in a work accident in 2017. There's something about that that he feels fortunate for as well. He was working for a pasta-producing company as a delivery driver when he was promoted to production in response to a staffing shortage. With little training Lucci found himself working on a faulty penne-making machine, actually making for some close calls. Instructed to move to another machine, Lucci never had the chance as the unpredictable one turned on unannounced and caught his hand before he could smack the emergency stop. "I was newly married [six months] and all that I was thinking about was that I didn't want to make her a widow." he remembers. "I went into survival mode."

Here's the fortunate part as Lucci describes it. "They couldn't get an IV in me in the ambulance. I was overweight and unhealthy. I arrived to the hospital with my injured hand in a bucket beside me." Lucci woke up three days later with his hand re-attached. Thought to be a successful surgery, a long recovery was understood but cut short after only six days when a clot formed in an artery to the hand. "Hindsight is 20-20," Lucci rationalizes, "but I think I prefer to have what I have, and to be able to do the things I can do with my prosthesis, rather

than a hand that was alive but not functional and probably painful. No, it's not the same, but for me it is better to have function."

Those consolations, of course, weren't part of Lucci's thinking at the time of his injury. "My greatest fears as I was laying in the hospital bed were all about how I would take care of myself, how was I going to do anything?... I was right-handed."

He also worried about how his wife would respond. "I had a lot of guilt about her having to be my caregiver. And how she would have to support me emotionally. And no one was there for her. I was never offered peer support in the hospital – my support came from my wife, my mother and my nurses. That's all I had. And who did my wife and mother have? I'm so grateful for them. They were by my side from morning 'til night. When they weren't there, I was scared and would cry."

Finally leaving the hospital brought Lucci some normalcy, but it came with a dark side too. His wife had to go back to work, leaving him alone with his fears. "I would call her crying, not wanting to do this anymore, not wanting to live. It was a very stressful time. I needed something to do, some place to go."

He found that place in the prosthetics clinic at West Park Hospital. It's where he found others, like him, to talk to. It was helpful. "I would go for a one-hour appointment and be gone all day. I'd leave with a smile on my face. We were all going through similar things. I would go home happy."

With his recovery on the right path, his outlook brightening and his "take control" character in hand – his left hand of course – Lucci started looking for opportunities for his right one.

"Taking control", he says, "has been a motto for my recovery. I reminded myself that while helping others is great, I had to do this for me too and take control of my outcomes."

Lucci says that he found that during the first part of his journey as an amputee, many professionals wanted him to have the





solutions they chose rather than having him decide for himself.

Now on his fourth myoelectric arm since his amputation, he's wearing the one he really wanted. "I first saw the TASKA Hand on social media, and I said to my prosthetist, 'I want that hand.' But, it was not yet available in Canada. I'm not the sort of guy to give up. Long story short, I was told: 'As soon as we can bring it into Canada, you'll be the first guy to try it.'"

Lucci now has the enduring distinction of being the first Canadian fitted with the TASKA Hand. "I decided that's what I wanted, and I made it happen."

This is where, again, good fortune befalls him. The TASKA Hand is an expensive device - far out-of-reach of the pockets of many upper extremity amputees. It's possible for Lucci because of WSIB funding. "I talk to a lot of amputees, and I do what I can to help. Many ask me about the hand - people who aren't as fortunate as me, who don't have the funding that I have - and it's hard to talk about what it's worth. I appreciate that WSIB has been generous with funding, but they know I use it. If it wasn't funded I probably would be wearing a body-powered system

with maybe a couple of sport attachments and hopefully the best basic myoelectric I could get."

Lucci does use it, everyday and just about all day. He stills uses his conventional Ottobock limb for tedious tasks like holding screws and nails when drilling and hammering, but for most else indoors and out, his TASKA Hand gets the job done. Its programmable settings adapt to what he's doing, like cooking in his kitchen, reeling in the big one on fishing trips, or riding his bike on city streets and trails.

"It's taken a lot of training with it to work well for me," he admits, adding that he was crushing Styrofoam cups and smashing eggs before he got the feel for it. He also notes that it's a bit heavier than his previous myo hands which has taken some time to get used to with respect to shoulder fatigue.

But the confidence he has in it, and has gained from it, is undeniable. His new hand's biggest selling feature for him, aside from the look and feel and function of a real hand, is the fact that it is waterproof. "I don't have to worry about getting caught in the rain or getting it wet when doing yard work. Washing my car is not an issue anymore," although old habits made him quite trepidatious about getting it wet at first. "Beats leaving a restaurant in the pouring rain with my hand in a plastic bag," he laughs. "True story."

And durability? Well, Lucci is quick to relate a cycling story that involved a new bike, with his new hand, after a long bout of not riding, and a set of streetcar tracks. "I was pretty scratched and bruised but my prosthesis took on only a scuff. "I stand by this hand. It is hard to break." Add to that, other people's reactions to it. It has changed the conversation for him. "It's a totally different conversation, moving from 'what happened?' to 'that's amazing' and 'how does it work?'"

That dynamic has influenced Lucci to influence others about the TASKA device. An exceptional user, and now as a TASKA Champion, Lucci is sharing his own videos of him trying all kinds of new things with it, even if at first it's a fail. "I need to be honest and real. If it worked, great; if it didn't, I need to show that too. I'm not saying it's all easy. It makes for great feedback for TASKA and Fillauer, its distributor, too."

In that same spirit of honesty Lucci says that transitioning to being left-handed has been hard. "There are some things - like writing - that feel really foreign to do with my left hand, and even with my prosthesis. I still get a lot of looks and stares that I'm not always comfortable with. I'm still learning new things with this hand. It's challenging and challenges me. I'm still figuring things out how, things like eating with my right hand and cutting food. But with my prosthetic hand on, I feel better and balanced."

His young daughter brings him balance as well. "When my daughter and I go out for a walk, she always wants to hold my hand – not my real hand, my prosthetic hand. My daughter only knows me as an amputee. She doesn't know any difference. That makes me happy."

## A touch of perfection.

The TASKA CX<sup>™</sup> Small Hand. Available now.



Grip List

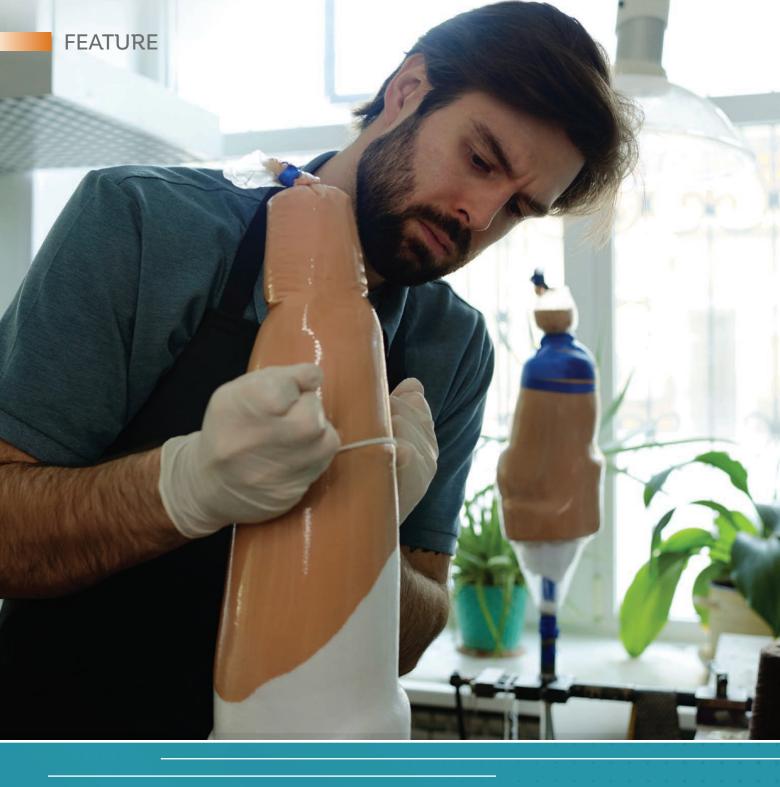
The new TASKA CX is the small hand destined to play a big roll in your daily life. All fingers and thumb are capacitive touch capable, meaning they can be used on any common touch screen. Plus with the improved motors, contoured appearance, and coverplate customization options, our smallest hand packs the biggest punch!

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#### do more



## Socket ...... SCIENCE

20 **thrive** ISSUE #21

In ancient times those concerned with limb loss could only dream of recreating the wonders of our miraculous bodies, limited to fashioning artificial limbs of wood and leather that provided feeble support for an amputee.

#### **PROSTHETIC DEVICES ARE**

**NOT NEW.** They are seen on thousand-year-old pottery and in Egyptian tombs. Yet, these devices were so crude that pain and limited mobility must've been a reality for those with limb loss in days of old.

Metals were introduced in medieval times, yet many practical day-to-day applications for amputees of the day were left wanting. Battle-scarred knights used it for special armor to hide their residual limb and later on, pirates brazenly sported hook hands and peg legs. But the idea of a return to comfort and able-bodied activity was as likely as flying through the air on a broom handle.

In the early modern period of the 1500s, the innovative Ambroise Paré made many refinements to medicine as the King of France's official royal surgeon. Among them, functional prostheses of clever design enjoyed by a few — including a mechanical hand and a kneeling prosthetic leg.

In the 1690s Pieter Verduyn created a prosthetic leg with a working knee and a leather high socket, a joint and corset device similar to some still used today. However, it wasn't until only a few decades ago that things changed for many, with the improvement of materials... namely, the arrival of plastic. Today, with plastics and carbon fibre, and CAD (computer-assisted design) and 3D printing, medical manufacturers have designs that not only recreate the human body, but arguably improve upon it.

To push prosthetic design forward and toward improved performance and wear-ability, many modern designers and manufacturers are presently focusing on the socket... the place where the body lives with the prosthesis. It's a crucial component that determines mobility, balance and comfort.

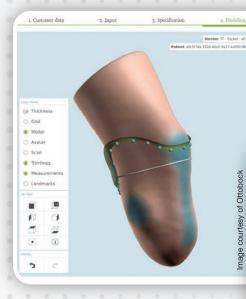
While this prosthetic piece suffers from the rigid factor, remaining unaltered and constant, conversely, muscles swell and tissues tighten and skin fluctuates between moist and dry, hot and cold, during the day. Fitness, age, and activity affect contracting or bulging limbs, limberness and stiffness. A high percentage of amputees have blood vessel issues, conditions causing irregular fluid retention which can generate volume fluctuations of 10 percent or more. Somehow, the solid prosthetic socket must function at peak levels throughout varying conditions to remain an effective partner.

Ill-fitting sockets compound issues of residual limb health, facilitating skin breakdown and pressure sores which of course can take their toll on limbs and by due course, the rest of the body.



## Innovation and Convention

**By Max Warfield** 



**ENTER THE COMPUTER.** The prosthetics industry is leaning into digital technology in an effort to improve upon the all-important socket. Ottobock, a global leader in prosthetic design, promotes on its website that "the future isn't coming, it is here now! Everything we have thought about for the past few decades is now coming to life. Ottobock is not just a product company; we are a software and digital company."

Ottobock employs its iFab Easy-Scan device along with 3D printing to create individualized components and custom fit. Its progressive new prosthetic offering is proving to be lightweight and durable, and designed with maximum user input.

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Biodesigns focuses on the importance of how the residual limb bone intersects with movement. By incorporating a Sensorized Imager Tool (SIT) that guides the clinician, paired with a Sensorized Socket Tool (SST), Biodesigns is paving

> the way for the world's first smart interface capable of capturing and controlling the underlying skeletal structure of the target limb. The interface is the core component of both systems.

That interface of socket to limb needs to provide optimum comfort, load bearing, force distribution

and transfer in a way that ensures wearer safety and metabolic efficiency. "When that is achieved," adds Alley, "a seamless, synchronized connection between user and device is created."

Biodesigns' innovative approach is called the HiFi Interface. "Unlike conventional sockets that simply fit the surface of the limb, the HiFi Interface utilizes a patent-pending alternating compression and release design to capture





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Prosthetic engineering is hitting its stride, utilizing advanced outcome-measuring devices, 3D printers, scanners and CAD. California's Biodesigns, Inc., for example, is another industry player placing emphasis on the socket. "Dexterous arms, despite the promise they bring of significant enhancements to current technology, are subordinate to the socket that interfaces with the user," says Julie Alley company co-founder. and control the underlying bone," explains Alley.

Martin Bionics is another leader in the socket sector of the prosthetics industry that uses advanced scanning and imaging devices. The company insists that the wearer must be an active participant in the process. The Martin Bionics HiFi Imager uses a 3-step process - the last one being a scan that creates images under weight-bearing conditions while asking for live feedback on compression levels in targeted locations. The manufacturer's Socket-less Socket<sup>™</sup> does not look anything like a conventional bucket socket. Notably, it is breathable, conforming, and has micro-adjustable comfort.

#### THE TRADITIONAL BUCKET SOCKET IS PROVEN, TRIED AND TRUE. It remains the most available and still owns a place in the market as many prosthetist's first choice. And, it is being improved upon in creative ways.

Click Medical's answer to an amputee's varying residual limb conditions during the day is the RevoFit, a dial-and-panel system that allows the wearer to adjust the prosthetic "socket" without taking it off or adjusting ply socks. It's a practical dial system, allowing the user to don and doff more easily. The targeted compression is intended to

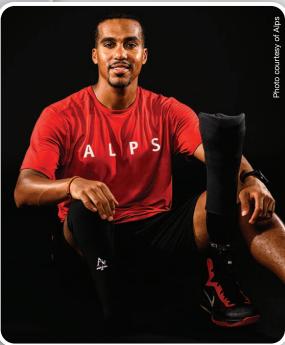
Martin Bionics courtesy of Photo

increase comfort and decrease clinic visits.

While the sexy innovations in the world of bionic limbs have rocketed the prosthetic field into the realm of Iron Man, much of it is years away from accessibility for most. And at the same time, simpler innovations can still impress.

"Socket technology has definitely improved in the past ten years but so have the interface materials, particularly the liners," explains PBO Group certified prosthetist RJ Clements. "Liners have changed the way prosthetists can have a patient bear weight," adds Clements. "Importantly, now we can disburse pressure away from sensitive areas and take away friction." A Head Instructor at George Brown College's Prosthetics and Orthotics Clinical Program, Clements divides his professional time between clinical practice and prosthetic education.

With respect to liners, manufacturers use a combination of three materials: urethane, silicone and





TPE (thermoplastic). "Using different grades of these materials," Clements explains, "is like adding a layer of soft tissue. The socket can then disperse pressure more evenly over the limb. A prosthetist can make it more firm or soft as needed."

Clements goes on to say that the improved quality of liners has really made a big difference for consumers. "We can load and suspend the limb in the socket so much better now. It allows us to try different techniques for better comfort, which is always so individual to each client."

Each patient is different. But for many decades, manufacturers and prosthetists have been attempting to harmonize a seemingly infinite amount of variables. Individuality, by definition, means that we all deviate from a norm: physical norms, behavioural norms and environmental norms. Nothing can be disregarded - different walking speeds and unusual environments such as steep ground slopes for example. Understanding individuality across tasks has important implications in the tuning of prosthetic lower limbs, where clinicians have limited time and resources to personalize the kinematic motion of the leg to therapeutically enhance the wearer's gait.

Time is a limitation, and even with the best prosthetic innovations there is the **ISSUE OF THE SCARCITY OF ECONOMICS.** 

An industry valued globally at 2.05 billion USD in 2021, and expected to be worth \$2.89 billion by 2027, is still one that is costly for consumers. New technology always comes at a price.

Clements has experienced this complication many times over in his career. "Some people, even with the greatest technology, will still be limited," he knows. "We all want improvement, and we're getting it in new materials, durability and wear time. There are all kinds of different limb choices... depending on cause of amputation and health status. Funding is an issue. Too often, it's not nearly enough."

One of those areas of improvement in materials, away from the bright lights of bionics, is socket liners. "In part," explains Clements, "because we've learned what makes a better liner — whether it is having it bent at the knee or a little thinner at the back, maybe thicker over a spot or having a fabric cover. A lot of patients have the classic enclosed socket. In the liners, there can be variable windows and pads." Back to new styles of sockets, client adjustability from manufacturers is where things are headed which gives ownership to the user to make changes on their own. "There are a lot of creative designs," Clements comments, "that come with less reliance on a prosthetist to look after the socket. Those dials give the user the ability to tighten and loosen their sockets to a certain extent."

Modern advancements continue to dazzle with bionics. But, not unlike the days of old, the pursuit of comfort in the prosthetic limb endures. Simply improving the daily life of the prosthetic wearer with better fit through innovations in technology and materials is not glamour work. But it is essential work and makes for an exciting industry environment today. They are "tools" says Clements, "options that prosthetists have at our disposal to create personalized, better lives."

#### **ABOUT THE AUTHOR:**

Max Warfield was born in Ridgefield, Connecticut, now making his home on the southern shores of Lake Ontario.



A correspondent for the *Lockport Union Sun & Jour-nal* and the *Niagara Gazette*, Warfield has also written and published numerous novels.



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#### HEALTHY LIVING



By Megan Williamson, BA, CPT

Please note: This article is a guide only and is not necessarily applicable to everyone. Please talk to your doctor for recommendations regarding specific chronic conditions before beginning an exercise program.

#### What You Need to Know

I work with many clients who have chronic pain. In fact, one of the most common reasons many of my clients have sought out coaching is to ask about their chronic pain during exercise. Questions often asked by my clients are: "How do I know when to push through?" and "How do I know when enough is enough?"

There isn't really a simple answer to either of these. Whether to push through the pain while exercising or not is very much based on your situation. First, we need to identify and define a few things.

#### What Exactly is Chronic Pain?

For those of us who aren't familiar (and lucky you, if you are not!), chronic pain is characterized as pain that has lasted longer than the body's typical healing time. This can be an acute injury that turned chronic over time from not being properly rehabilitated or addressed.

Or it can be more complicated, like symptoms from a heightened sympathetic nervous system. This can happen after an individual has experienced some form of trauma or has lived with high levels of stress for elongated periods of time. This type of pain typically falls under the umbrella of neuropathic pain.

Neuropathic pain can also be the result of damaged nerve fibres. This can be experienced in people living with Multiple Sclerosis, spinal cord injuries, and certainly those who have had an amputation. Although we still don't know a lot about neuropathic pain, there are a few things we can focus on during exercise that may help.

#### Habits that Can Help You with Exercising

**BODY SCAN** Practicing a body scan can help keep us in the present moment, which can then calm our nervous system. This can be done as a warm-up before your workout or first thing in the morning. Closing your eyes can be a great way to increase your concentration on this exercise, especially if you are new to performing body scans.

**CROCODILE BREATHS** Deep breaths from your diaphragm can be a good way to calm the nervous system too. Try imagining that there is a deflated balloon deep in your belly, right above your pelvis. Take an inhale and fill the balloon (we want to go deeper than just filling the lungs in our chest). You can also place a hand on your lower belly for some feedback. As you exhale, feel your hand on your belly gently fall in towards your spine. Repeat for 15 cycles, or more if you wish.

#### **KEEP YOUR BODY TEMPERATURE**

**COMFORTABLE** Sometimes aerobic activity that heats your body causes an increase in neuropathic pain. Try and avoid hot or warm environments. Alternatively, keeping limbs from getting too chilled helps some individuals too. Bring layers to your workouts so you can adjust as needed.

#### How Can You Keep Moving While Staying Safe?

The following recommendations are for the purpose of encouraging you to move in a safe and supported way while simultaneously improving your body's strength and endurance.

**ARTHRITIS PAIN** To help decrease pain during your workout, it's important to focus on an extensive warmup for your joints. This may be on a recumbent bike, a Theratrainer or even a Nustep machine.

Adding extra insulation layers around the arthritic joints is also a great way to increase warmth. Many of my clients who have arthritis in their knees and ankles like to wear thicker socks or fleece-lined pants on top of their workout gear. This can help resolve some of the pain for a more enjoyable exercise session.

**MUSCULOSKELETAL INJURIES** If your injury is something that you are choosing to work through, then I suggest the first thing to do is find your pain-free range of motion. If your shoulder is hurting, how far up can you extend your hand overhead before that pain kicks in? How far can you reach to the side without discomfort?

Stay within the established pain-free range until your injury has been treated or addressed. Keep in mind, this does not mean that we should work through ALL musculoskeletal injuries.





#### WHEN IN DOUBT, REFER OUT

Physiotherapists are experts at assessing an injury. They can then help support your recovery by using manual manipulation techniques and setting up a proper treatment program. Most physiotherapists will see clients without a referral. However, sometimes a referral through your doctor can help with costs.

#### Pain Can be Good for Us

Yes, I realize this headline might put a cringy look on your face. But hear me out! Pain is our body's ability to send us information. If we don't have pain as an indicator, that can be really dangerous. This is why it is so hard to determine when to push through the pain.

Pinpointing what kind of pain you are experiencing, and being cognizant of it, can help us successfully manage it in a way that brings progress in our exercise routines and goals. Take Janice for example, who lives with a neuromuscular disease:

"... for over thirty years I've experienced high levels of pain. After many of my own efforts to train at the gym I still didn't understand how to achieve results. I used to get quite discouraged and I became somewhat fearful of new physical challenges. Megan teaches me how to make progress."

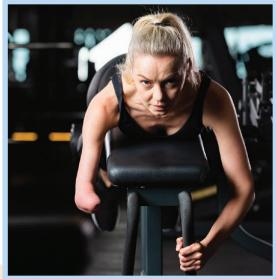
"Now, at age 56, instead of frequent acute injuries that have limited my function and independence, I'm enjoying more freedom and ease of movement. I used to have weeks when sore shoulders would keep me from lying on my side in bed."

"I'm curious and hopeful about what I can achieve in the future now that I know how to do a good warm-up and improve my strength even with my degenerative and painful neuromuscular disease. My chiropractor has seen a huge shift in my back's muscle tone and I don't need as many appointments."

Pain is an important indicator that our body gives us. But sometimes, especially with neurological pain, it is nothing but a distraction that can stop us from making traction in our exercise routines.

So, regardless of what your chronic pain stems from, just know that there are ways to approach exercise that will allow you to move your body in a safe and supported way, even if this looks different.

For exercise ideas, workout programs or a personal consultation, contact Megan through her website at www.oceanreahandfitness.com. Follow her programs with an Ocean Insider Club subscription.



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**C-Leg** 

3C88/3C98-3

**IP 67** 

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- Accidental water damage does not void the warranty
- Designed specifically for lower mobility users

Kenevo

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**IP 22** 

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#### For Example:



Protection from solids:

From 0 (no protection) to 6 (dust tight)



to 8 (continuous immersion)

#### What do the numbers in an IP rating mean?

The numbers that follow IP each have a specific meaning. The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects. The second digit rates the enclosure's protection against liquids and uses a scale of 0 (no protection) to 9 (high pressure water from different angles).

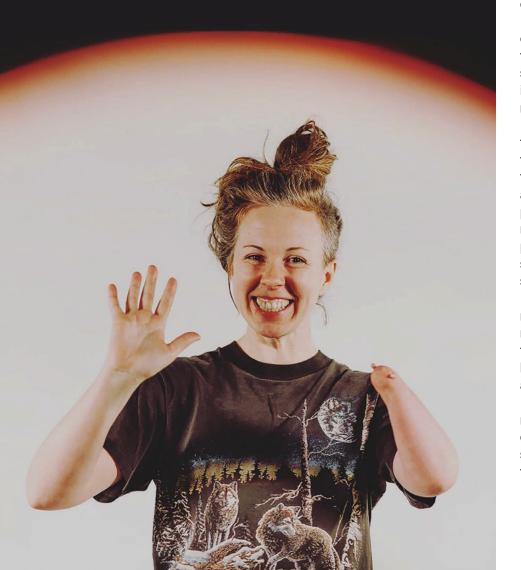
Visit ottobock.com or talk to your prosthetist to learn more!

#### PARENTAL GUIDANCE

# Armed with a Choice

#### "What my inner child wants you to know about having a limb difference."

By Alexis Hillyard





When I turned eleven I had one wish for my birthday: a Chuck-E-Cheese birthday party with pizza and games! My loving parents said, "yes"!

So, in the dead of winter they hauled me and seven of my friends to the popular kids restaurant for an afternoon of pure chaos and delight. After polishing off three pieces of cheese pizza, I made a beeline to the ball pit. I jumped and dived and played to my heart's content until I was happy-tired and sweaty. My myoelectric arm had other plans, however.

Sweaty me made my arm extremely slippery, and after a particularly big bounce my prosthesis slipped off and buried itself deep into the bevy of balls before I could rescue it.

My patient father was called to the scene. He waded through the used Band-Aid-ridden ball pit for what seemed like an eternity, and finally fished out my arm and passed it to my mom through the mesh netting. Mom slid it into her purse, with my prosthetic hand sticking out just enough to raise some eyebrows.

The best thing about my infamous ball pit experience was that mom and dad didn't let it break the flow of my birthday party. I got right back to having fun. That's how it always was with my parents.

Since the day I was born without my left hand, they took my limb difference at face value. It wasn't something to be scared of, to pity, to overcompensate for, or to glorify. It was just a part of me, and they did everything they could to encourage me to feel comfortable in my own skin. Mom and dad never just 'did stuff for me' assuming that I'd have trouble with a certain task. They gave me the space to try things out on my own first. And they taught me how to ask for support if I needed it. This gave me an early sense of body autonomy that I believe is extremely important for kids with disabilities to develop.

Interestingly, all of the doctors and medical professionals in my sphere strongly recommended to my parents that I wear a prosthesis. (Looking back, I think that children should be able to choose for themselves whether or not they want, or need, a prosthesis – but that's another story!) My mom and dad always wanted to do what was best for me, so taking the doctor's advice, they took me to a prosthetist at the Glenrose in Edmonton to be fitted for a prosthetic device when I was about 18 months old. When we got home and I put the arm on, as mom recalls, I sat there like a lump – not unlike how a cat acts when you put a T-Shirt on it, sort of stiff and awkward.

I did wear it, and I wore other prosthetic arms that I received as I grew, but not super regularly. I had a passive prosthetic hand when I started kindergarten, and after just a few weeks my teacher informed my parents that I would take it off and place it on the windowsill as soon as I got to the classroom. I'd pop it back on before getting picked up. My parents always followed my lead. They stopped asking whether or not I wanted to wear my arm on any given day. From then on, it was my choice, and I loved that.

One of the beautiful things about being able to choose when and what types of prostheses I wore or didn't wear was that it gave me room to explore and do everyday things with the body that I was given. (I recognize that I was very lucky to have financial support for prosthetic limbs from the CHAMPS Program through The War Amps of Canada).

I was able to learn my natural limits and push them at my own pace. This allowed me to grow a sense of bodily autonomy and confidence that stayed with me throughout my life.



"... being able to choose when and what types of prostheses I wore or didn't wear gave me room to explore everyday things with the body that I was given."



My family helped me navigate my young life with a limb difference in another wonderful way too. My sister, mom and I would play 'school' together before I went to kindergarten. My sister would pretend to be a kid in my class and pose a lot of different questions to me about my arm. Sometimes she would even pretend to be a bully and make negative comments about my arm. My mom would carefully support me in crafting comfortable responses that I could have ready for any type of encounter – good, bad or ugly.

Doing these role-plays enabled me to build an entire lexicon related to my limb difference that I could tap into any time I needed to. It boosted my resiliency and confidence in ways that still impact my life today. I am forever grateful to my family for the ways that they enacted their love for me, and for how they always made sure I felt comfortable in my own skin.

Follow Alexis on Instagram: @stump\_kitchen or Tiktok: @stumpkitchen or visit her website: www.stumpkitchen.com.

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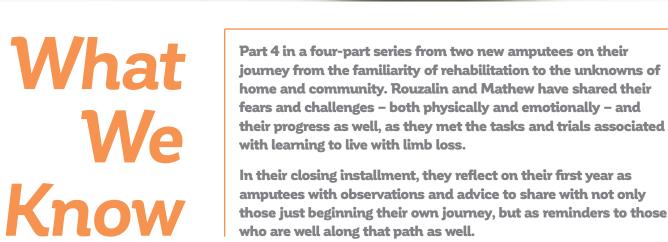
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#### BEGINNINGS



#### Rouzalin

081 09

Just a little over a year ago I sat in a wheelchair in rehab overthinking all of the obstacles in front of me as a new amputee. I wondered where I'd be in a year, how I'd cope, what I now could and couldn't do, how people would react, and most of all... how I'd mentally and physically manage my life.

The anxiety of not knowing what my life would be like drove me into many layers of panic. I would listen to anyone who had any related experience to get answers. So many questions looped through my mind day after day. So here I am, one year later, sharing some answers to those questions.

What I know so far is that just like before an amputation, no one's life is identical to another's. I've had the privilege of connecting with many amputees with different levels of amputation and time as an amputee. I thought that if I spoke to enough people, I would find some sort of confirmation as to what my life would be like. That wasn't the case.

for Sure

By Rouzalin Hakim and Mathew Levinson

Don't get me wrong. Sharing our thoughts with others who are going through the same thing is wonderful, but what you do with it is all up to you. You get to decide every single day what you want to make out of this. I took it day by day.

I also know the desperation we can feel just to get some sort of a painted picture, a little light shed on a very dark situation. Reflecting on my first year as an amputee, it looked a little like this.

I was in Sunnybrook Hospital in Toronto for a short two weeks and then transferred to St. John's Rehab for a long six. These are two very different environments to say the least. I learned a lot in St. Johns, but it took a lot out of me as well. This is where I relearned everything from scratch. I went through a litany of physical and mental phases. I started off using a wheelchair, transfering to a walker, then crutches and then to my first leg.

I went to physio and OT [occupational therapy] every day, progressing with tasks, until my discharge date. I felt an incredible mix of emotions on discharge day. I was excited to get out of rehab and start testing boundaries and living life again, but it was so scary – rehab was the only home I'd known as a new amputee.

So, we start our new lives back at home with loved ones around us. Our emotions are all over the place – to be expected of course. It's all so new and life-altering. I learned that I'm entitled to every one of those emotions. Sometimes things felt way too overwhelming. I got anxious or scared. But there were days that I felt like myself and that I could handle this.

The hardest thing for me to adjust to was the thought that "this is not my leg. I cannot wear it all day everyday (not at the beginning anyway)." I needed to remember to take it easy on myself at first so not to exhaust myself.

The sockets and trial legs in the beginning were uncomfortable. For one thing, I hadn't built trust in my prosthesis and I definitely was not accustomed to having the weight and pressure of a socket. The good news is that I built that trust in time. It didn't take me long to become active and using my prosthesis nearly all day.

It took me about a month to get back to the gym which may have been the most helpful decision in my entire journey so far. Taking what I learned from physio and OT and expanding on that helped me build strength and confidence! I learned to set realistic goals, and to meet them, to feel a sense of achievement. This was crucial in my journey!

I was on a mechanical leg for nearly six months before I was able to trial microprocessor knees, which vary considerably by the way. I had gotten quite comfortable on my mechanical knee. I was training at the gym regularly and working part-time. But what I wish I knew then was to try to get help around the house, be it from family or professionals, so I could've better utilized my energy. It took a lot out of me to do the day-today things.



My advice to new amputees: practice patience and remember how far you've come as much as you can. You'll achieve a lot more than you set out to do once you give yourself time to adapt. Whether you're young, older, active, or anywhere in between, there are always goals to achieve. It may be as simple as grocery shopping or as great as weightlifting. We all need something to reach for!

Within my first year, I got back to the gym, back to work, wrote for *thrive magazine*, competed in bodybuilding competitions, was featured on podcasts, and volunteered for peer support. I don't share this for bragging points, but rather for hope and potential of where you can take your own journey. I never thought I'd make things like these happen, but I kept setting small and achievable goals which led to milestones and bigger accomplishments.

I seemed to struggle more than anyone I met when it came to my amputation. I was very resistant and unaccepting of my circumstance. I was in disbelief, and I wouldn't take help from anyone. I had to let that go because I was burning out with my resistant ways. I had to come to understand that I didn't have to decide there and then what the rest of my life would be like.

My observation: you get to relearn yourself from scratch. It might be completely overwhelming at times, and things might come at you faster than you can handle but give yourself time and patience. I can say with all honesty, that as scary as it was, at the same time it was very exciting. You're in a brandnew world and it's yours to own!



#### Mathew

Life moves fast, but adapting and adjusting to it can move slowly. Over my past months there have been a lot of firsts as an amputee – I've travelled, gone to concerts and events, and set off metal detectors galore along the way of course. While some moments can be very trying, there are others that I've just had to shrug off and laugh about. We all have good and bad days. What we do with those days and how we react to them is what shapes our outlook going forward.

One of the things I didn't fully appreciate until I experienced it first-hand is that my impairment isn't always visible – even something as seemingly overt as an above-knee amputation sometimes goes unnoticed.

In the summer I attended a golf tournament with my brother and cousin. There was an accessible seating

area with a great view of one of the greens – so we approached the platform and a gentlemen gestured to me to grab one of the seats. As I got there an usher, who didn't notice my prosthesis, promptly asked what we were doing in that area. Of course, as soon as she noticed my prosthetic leg she profusely

What I know for sure is that this is one of the hardest things I've ever gone through. I know that we adapt more quickly than we think we do. I know that having the right support from both professionals and loved ones is CRUCIAL to our recovery. I know that networking with support groups and friends and family will keep your light lit. I know we all progress at different rates but having goals keeps us on track. I know that we will heal, and time is on our side. I know that the amputee community is a strong and compassionate one. I know for sure that no matter where you are in your journey, you can be strong and capable.

Comments or questions for Roz, reach out on Instagram 1\_bionic\_ beauty.

apologized. While it wasn't an ideal reaction, it's important to stay level-headed and understanding in these situations. An honest mistake, one we could all make, and we laughed it off.

When I'm wearing shorts in the summer it is usually obvious that it's my prosthesis setting security check alarms off, but in the winter when I'm wearing long pants, not so much. I've learned that rolling up a pant leg just before I go through the machine saves a lot of hassle, confusion, and apologies for everyone.

Another first, over the past few months, was receiving a prosthesis made specifically for wakeboarding, surfing and snowboarding. I've always been an avid board-sports enthusiast but without a waterproof prosthesis wakeboarding or surfing was not an option. I would take my leg off to swim with my friends and family, but I was itching to get back on a board.

It took months of working with my prosthetist to get this second device in motion, but I was persistent in making it happen. When I finally brought it home I couldn't have been more excited. It was what I had been waiting for since I was in the hospital a little over a year ago.

The first order of business was getting the new foot into my wakeboard boot – it was a tight fit. It took a combined effort of about four of us to figure it out. Step two was putting the new prosthesis on. Easy enough. And step three, the most complicated, was getting my other foot in the other wakeboard boot. After a few attempts at it solo, it did take a team effort to assist.

Then, it was go-time. I had no plan... no strategy but to hop in the water and get up on a wakeboard and do what I had done hundreds of times before. I shimmied to the edge of the dock and plopped into the lake. I was a bit nervous that this might not work out, but that was greatly overshadowed by my excitement to try it.

Before the boat took off my brother raised a good point – what if I fell facedown? Would I be able to rollover? Would I be stuck in the board? And this is why it's important to have caring people around you. I practiced a roll beside the dock to make sure all was good, and it was, but still a smart idea before I was out in open water.

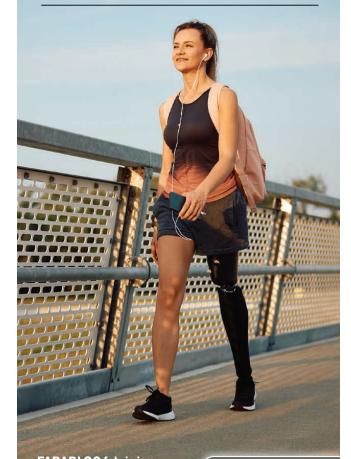
The boat edged forward and I gave a thumbs up. I can't even begin to describe how good those first few seconds felt. Popping out of the water, gliding on top of it, smiling from ear to ear and enjoying every second of it. I couldn't wait to go out again. And so I did, the very next day, with Rouzalin looking on from the boat.

Rouzalin has been such a source of inspiration to me since our journeys as amputees began together over a year ago now. It was amazing to be able to share with her that feeling of joy and freedom, on the water, in my happy place. A few weeks later I was privileged to watch her steal the show in her happy place, at a bodybuilding and fitness competition.

Our connection is a testament to what a strong friendship and bond can do – one year after trauma we're achieving and celebrating our goals, although different for each, together.

Going through life as a new amputee, and maybe for seasoned amputees too, everything ebbs and flows. There are ups and downs, highs and lows, physically and mentally. I kept a positive outlook and perspective as much and as best as I could. That was so important for me to cope with all of it. Above all else, surrounding myself with good people has made my journey enjoyable. It makes working through those tough moments exponentially more manageable and makes the lighter moments shine a thousand times brighter. Keep those people close, and don't shy away from meeting more of them.

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Check out the list of past shows at www.aristotledomingo.com.



#### ASK THE EXPERTS

# CARING FOR YOUR PROSTHESIS



While a prosthetist may have explained in detail how to properly use and care for your prosthesis, we understand that clients and patients may not remember every detail shared with them during this time.

With that in mind, this is a go-to care guide that we designed to help our clients refresh their memories to ensure proper prosthesis care to prevent other health concerns!

#### **1. Wash Your Prosthesis Socks or Sheaths Daily**

To prevent potential health risks, it's recommended to wear fresh prosthesis socks everyday. If your sock becomes damp or wet from perspiration, it is ideal to change it immediately. Most prosthesis sock or sheath brands include care instructions – follow the provided instructions to prolong the life of the socks or sheaths.

#### 2. Don't Forget to Clean Your Gel Liner

Since your gel liner is always in direct contact with your skin, it's important to clean your liner at least once a day. Not only will daily cleaning help prevent potential infections or health concerns, it will also help with maintaining and prolonging the life of the liner. Here is a quick breakdown on cleaning:

- Take the liner out of your prosthesis.
- Spot clean the outside of the liner.
- Flip the liner inside out and clean it using anti-bacterial soap and warm water.
- Rinse and dry well with a cloth.
- Flip the liner right side out for future use.

#### **3. Clean Your Socket**

Although the socket doesn't touch skin directly, we highly encourage cleaning it which will help it last longer and ensure that it continues to function as it should. Set aside some time once a week to clean inside your socket. Spray it with an alcohol-based cleaner and wipe it clean and dry.

#### 4. Reach Out to a Professional

With everyone's diagnosis and prosthesis being different, it's sometimes best to reach out to a professional, especially if it involves an issue that could put you in danger or jeopardize your healing process. At the end of the day, our goal as professionals is to help you attain your lifestyle goals and ensure that you're safe during the transition.

#### More healthy and helpful information at www.pbogroup.ca.



# AMPUTATION and Your Mental Health

By Aristotle Domingo

Launched in 2010, Bell Let's Talk Day is an annual mental health initiative that's focused on how we can support ourselves and those in our community by listening, talking and being there for one another. The 2023 Bell Let's Talk Day will be January 25, 2023, and represents Canada's largest corporate commitment to mental health and mental health awareness.

Losing a limb can be devastating and causes significant disruption not only to the life of the individual who lost a limb, but to his or her family as well. Mobility challenges, participation in day-to-day activities, and independence are often immediately impacted.

Limb loss can also affect one's job, career path, and even relationships. Ongoing health issues may persist, like pain, or the need for further surgeries. These things can take a toll on someone's mental health too.

But there are strategies to assist with managing mental health and the limb loss journey.

#### Recognize Your Emotions

Shock, anger, frustration and sadness are all common after amputation, especially with trauma. Recognize that these feelings are valid and common. In fact, these feelings can persist long after an amputation, and sometimes are even fuelled by the process that accompanies the fitting of an initial prosthesis.

While such emotions are a normal response, it's important to prevent them from being the only emotions felt throughout recovery. It's important to recognize happiness and joy with supportive family and friends. Visiting with family and close friends can help stave off feelings of isolation and depression during these times. Embrace how good it felt chatting with them even for just a little bit. Many of these negative feelings dissipate eventually, but it's good to acknowledge them when you feel them so that you can do something about them.

#### Address What You're Feeling

One of the hardest things to admit to anyone - family or friends and even yourself at times - is how you are really feeling. Depression, anxiety, isolation and acceptance don't always come with clear signs. It may be helpful to discuss what you're feeling with a trusted family member or friend. Talk about bursts of tears or dreams or nightmares you've experienced since your amputation. Talk about the things that seem to set you off or bring about anger. Voicing these things can help your care team address what you're feeling. Remaining undiagnosed will be your worst enemy during your recovery.

There is no shame in sharing feelings of depression or anxiety. Addressing them is important to a healthy recovery. Request to speak to a professional or ask a family or friend to speak to a social worker on your behalf.

#### Self-Care

The initial stages of amputation are stressful. Taking care of your health is a practical strategy and an important practice.

**1. Get a good night's sleep.** This can be challenging, especially when experiencing ongoing pain. Practice good sleep routines. Find a few minutes to get ready for bed. Find a relaxing activity like reading a book or magazine to clear your mind. Practice breathing exercises to relax your body.

"There is no shame in sharing feelings of depression or anxiety. Addressing them is important to a healthy recovery."

**2.** Maintain a good diet. A balanced, healthy diet provides the energy needed to meet physical and mental demands.

3. Find ways to exercise. Physical activity is important during recovery and long after you've been discharged from the hospital. Maintain the exercises you learned while you were in rehab. It will help strengthen the muscles you need when you start wearing a prosthesis. Join a local mall walking group even if you're still in your wheelchair, if your arms are healthy enough to wheel yourself around the mall. Wheeling engages your arms and your core and it is a good cardio workout. Find like-minded groups that do physical activities at your level. Not only will you be getting physical activitiy, but you'll also be getting back into the community.

4. Practice mindful exercises.

Adopt healthy habits like meditation, breathing exercises, or even adaptive yoga. Sitting still and focusing on a simple object around you while purposefully breathing in and out can ease away stress. Practice mindful awareness. For example, smell your favourite foods and take a moment to pause to remember a good feeling or memory associated with them. When negative thoughts encroach, take a moment to stop and label that thought as unhelpful to release the negativity. Take occasional moments in your day to stop to ponder your actions. Ask yourself if it is helpful in your recovery and your life. If not, let it go.

**5.** Find a support group in your area. Finding like-minded peers has been linked to improved overall well-being. Meeting others in similar circumstances, who are experiencing similar situations, provides a sense of community. It also provides an opportunity to find activities to do together, and to learn from one another, and even to mentor other amputees.

Each of us experiences different emotions when faced with limb loss that affect our mental health. Admission and acceptance of these feelings and emotions is a hard thing to do. But remember that there is no shame in acknowledging these feelings.

#### ABOUT THE AUTHOR:

Aristotle Domingo's journey to

amputation began when his mom found him passed out, unresponsive. What ensued was 15 years of struggle. He had



his left leg amputated below the knee in 2017, and his right in 2019 changing his life for the better. The athlete, actor and advocate is the founder of the Amputee Coalition of Toronto, and recipient of ParaSport<sup>®</sup> Ontario's 2020 Ambassador of the Year Award.

#### **SPORTS & RECREATION**

Sydney Howard races BMX bikes and designs her own custom prosthetic devices and bike racing accessories using Tinkercad and 3D printing. Sydney is using the TRS Swinger to grip her handlebars.



# Lending a HAND





The POWER PLAY PROSTHETIC GOLF ADAPTER provides exceptional power to the club at the bottom of the downswing.

## ADVANCES IN Activity-Specific Prostheses for Upper Extremity Amputees

**By Bob Radocy** 

Consumer interest in activity-specific, non-electronic prostheses continues to grow. In response to interest and demand, "activity-specific" terminal devices are evolving and improving.

Companies like Fillauer TRS are embracing new manufacturing techniques that involve "additive" processes, also known as 3D printing. Lightweight, these innovative designs are proving to perform as well or better than current models. Add to that, improvements are being guided by consumer input and requests which are making for more versatile designs.

Let's delve into a few examples. Weight training prostheses continue to be high in demand. In response, the popular TRS Black Iron Trainer has evolved into a new PIVOT model. The new design provides for a wider range of motion (ROM) through the radial-ulnar movement "plane" which better supports the biomechanics in the exercises involved. Added control, stability, muscle-targeting and less stress on elbow and shoulder joints are some of its benefits. The pivot itself is user adjustable, so that it can be "tuned" to individual preferences.

The same pivot concept has also been added to TRS's Multi-D, Hammerhead and Black Iron Lite terminal devices. The added ROM achieved with a pivot on the Hammerhead improves the kayaking experience by providing the prosthetic user with better control of the paddle, allowing for more paddling power with less effort and again, reduced stress on the elbow and shoulder joints.

New materials used in additive manufacturing can make devices lighter and more highly stylized. Employing additive manufacturing technologies contributed to the redesign of the SKI2 which is now the new SKI-TREK device. The SKI-TREK is intended for not only Nordic and Alpine skiing but for hiking and trekking as well.



The CRITERIUM PLUS greatly improves grasping control over handlebars.



The SKI-TREK can be used for Nordic and Alpine skiing and hiking.





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Kayla Crnecki





Ski poles or hiking sticks can be simply modified by removing the regular grip, adjusting the pole length and re-sizing, if needed, to securely fit the device with the provided "sizing kit".

The CRITERIUM PLUS is another example of how additive manufacturing techniques and materials are being used to effectively create strong, lightweight activity-specific devices. This device was originally conceived for use with BMX-style bike equipment.

But the PLUS developers quickly realized that the design, powered by mechanical springs for handlebar control, worked for almost all types of bicycles. The CRITERIUM PLUS significantly improves grasping control over the handlebars without sacrificing any safety release factors. The PLUS also has a user-adjustable, pivot wrist that improves control and puts less stress on the prosthesis and associated limb joints. The versatile PLUS also has "cross-over" applications for yard and garden activities.

TRS continues to develop new terminal device innovations for upper limb amputees including an entirely new concept device for playing golf. The POWER PLAY Prosthetic Golf Adapter (PPGA) was originally conceived for bi-lateral hand amputees. It replaces the standard, synthetic, golf grip with a new one that interfaces with the PPGA, a high-performance, flexible terminal device. The PPGA captures huge amounts of energy on the backswing, providing exceptional power to the club at the bottom of the downswing. Have fun out there!





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https://getairmoto.com/.

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FINAL WORD

"When it comes to life, the critical thing is whether you take things for granted or take them with gratitude."

- G. K. Chesterton

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