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18 Breakthroughs in the treatment of concussions
Chiropractic paired with these modalities and nutrition provide a more active treatment and recovery
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**LET ME KNOW WHAT'S ON YOUR MIND:**

**LETTER FROM THE EDITOR**

**SPORTS & ATHLETIC PERFORMANCE**

As our sports issue went to press, the Tampa Bay Lightning were in the Stanley Cup Final, contending for their second straight championship, which means more work for Tampa-area sports DC Tim Bain.

Last year Bain spent 65 days in the NHL’s COVID-19 “isolation bubble” in Canada, while the Tampa Bay Lightning won the 2020 Stanley Cup, before finally being reunited with his family. The team’s chiropractor since 2011, Bain is now back in the playoffs mix with his team only wins away from again raising the Stanley Cup.

“I feel the Lightning are a pretty inclusive bunch,” Bain told local WFTS TV in late June. “The players know if it wasn’t for people doing the stuff behind the scenes it would probably not go as well.” When the Lightning won the semifinals in seven games, they were presented with the Prince of Wales trophy and the entire team, including Bain, was in the photo.

Luckily Bain says he has a wife who understands his time away with the team.

“She’s a hockey person, she’s from Minnesota,” he says. DCs know the benefits of chiropractic care for athletes, from the pros down to weekend warriors and K-12 players, from improving range of motion to reducing pain, providing non-invasive care and lessening the need for pain-killing drugs, decreasing recovery time, assisting injury repair, and holistically supporting the athlete.

**In this issue: getting ‘in’**

From working with the pros to K-12 athletes, this issue we speak with chiropractors who work with or formerly worked with the Chicago Bears, the St. Louis Blues and St. Louis Cardinals, and the Tampa Bay Rays and Tampa Bay Buccaneers.

Wondering how to start in sports locally? We take a look at working with K-12 athletes, schools and school districts, and also discuss updated concussion protocols for dealing with children and adults.

“Every year more than 3.8 million concussions are reported,” writes Robert Silverman in our featured article.

“Left untreated, treated late, or treated incorrectly or incompletely, post-concussive syndrome can become chronic, with persistent symptoms lasting for more than three months after the initial injury. Chronic post-concussive syndrome can lead to long-term health issues such as migraines, dizziness, memory problems, brain fog, fatigue, and sleep disturbances that interfere with daily life.”

Also in this issue: working with athletes from the ground up, correcting athlete lower body issues and avoiding hip surgeries, a look inside the NBA’s former playoff “bubble” in Orlando, and much more.

**Chiropractic bill support increases**

It was good news for chiropractic in June as a number of additional congressional sponsors came out in support of the Chiropractic Coverage Modernization Act (H.R. 2654), with nine new sponsors making for 68 total sponsors.

The Chiropractic Coverage Modernization Act would increase Medicare coverage of services provided by doctors of chiropractic within the full extent of their state licensure and align Medicare with chiropractic coverage offered in many private health and Medicare Advantage plans across the U.S.

“We applaud Rep. Higgins and the cosponsors for their support of modernizing Medicare’s chiropractic coverage to meet the needs of today’s beneficiaries,” said ACA President Michele Maiers, DC, MPH, PhD.

To learn more about the Chiropractic Coverage Modernization Act and to urge your member of Congress to support this important legislation, visit HR2654.org.

To your practice’s success,

*Richard Vach*

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Yochum first chiropractor admitted to International Skeletal Society
Terry R. Yochum, DC, DACBR, of Arvada, Colo., became the first chiropractor accepted to the elite International Skeletal Society (ISS) — something he never thought possible.

Yochum wanted to present a paper at an ISS meeting, but needed to become a member and felt that was a long shot for a chiropractor. Then Mark Schweitzer, MD, a preeminent radiologist and ISS member, encouraged him to apply, Yochum did and was granted full membership.

With changes of attitude toward chiropractic beginning to take place in the allopathic profession, Yochum encourages all chiropractors to seek memberships, leadership, degrees and recognitions.

ChiroEco.com/yochum-iss

Set your calendar for September virtual WFC Biennial Congress
The World Federation of Chiropractic (WFC) has announced the academic program for the Biennial Congress on Sept. 23-25, held live virtually as a result of ongoing international travel restrictions caused by COVID-19. The entire three-day event will also be accessible on demand.

The congress’s theme of “Chiropractic for a New Normal” will showcase contemporary issues. Plenary sessions will cover patient-centeredness, inter-professionalism, collaboration, futurism and adaptation to a new normal, and for the first time, the congress will feature digital poster sessions. Presenters come from 19 different nations.

To register, visit wfccongress.org.

ChiroEco.com/wfcbc-2021

Meditation, spiritual well-being may preserve cognitive function
A new review in the journal of Alzheimer’s Disease examines research that finds spiritual fitness, a new concept centering on psychological and spiritual well-being, and Kirtan Kriya, a simple meditative practice, may reduce multiple AD risk factors.

The authors discuss how well-being may reduce inflammation, cardiovascular disease and disability; and how Kirtan Kriya, a 12-minute singing meditation, has multiple documented effects on stress. “Making a commitment to a brain longevity lifestyle, including spiritual fitness, is a critically important way for aging Alzheimer’s disease free,” explained Dharmar Singh Khalsa, MD, and Andrew B. Newberg, MD.

ScienceDaily.com

6 quick tips for social marketing
Inception Online Marketing, a chiropractic marketing company, maintains a long list of chiropractic marketing ideas — 65, to be exact — on their website. Here are just a few of these ideas for your social marketing.

Inception recommends learning to use Facebook Ads, rather than relying on traditional Facebook posting. Facebook’s tightly-targeted ads allow you to focus very narrowly so you’re more likely to reach your ideal patients.

Twitter marketing: A Twitter page for your business is a good idea, especially for introducing your practice and service to potential patients in your local area.

YouTube videos: You Tube is the place to show potential patients who you are and give them an idea of what your practice is like. Don’t forget to film and post testimonial videos from happy patients.

LinkedIn profile: While you may not generate many new patients from LinkedIn, says Inception, using it correctly can help you make professional connections that can lead to speaking opportunities and other ways to promote yourself.

A book or e-book: Write one, then promote it using your social pages. “Being an author gives you instant credibility,” Inception notes on its website. “Would you rather see the doctor in town that wrote a book or the one that didn’t?”

Powerful pictures: Make sure the photos on your website and social media pages, especially Instagram, are as interesting as possible.

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The Back Space and Walmart partner for drop-in chiropractic care

The Back Space, a newly launched retail spine and neck care subsidiary of IMAC Holdings Inc., in June announced it has partnered with Walmart to provide spinal health and wellness services through its own branded locations directly within select Walmart locations, according to Benzinga.com.

The partnership will begin with a 10-store pilot in Middle Tennessee and will announce other pilot locations in the coming months, with the potential to expand across many of the 5,000 stores across the United States.

“We believe that true relief shouldn’t just be for those who have extra time or money,” says The Back Space website. “At The Back Space, we believe that relaxation and relief should happen at every opportunity — even during your weekly shopping trip.”

The Back Space charges a flat fee of $25 for each service, while a monthly membership subscription of $65 gives clients four services every month.

The Back Space’s services are based on the three pillars of percussion therapy, adjustments and the Relax Station, “for guests who seek to target soreness, spasms or pressure points in the back, neck and shoulder. In addition, a heating pad with light nerve and muscle stimulation service is available for directed relief.”

For more information go to chiroeco.com/the-back-space.

SCHOOL NEWS

Life University’s compassion training recommended for all of India’s university students

Life University’s compassion training recommended for all of India’s university students in India by its Ministry of Education, according to CCISE Associate Director Michael Karlin, PhD. The recommendation was made by Rajnish Jain, secretary of the University Grants Commission (UGC) of India’s Ministry of Education. Jain noted in his letter to all Indian university vice chancellors and college principals, “Looking at the objectives of this course, the vice chancellors of all universities and principals of all colleges are requested in making the details of the course available to their students, as developing emotional intelligence skills is critical to leading more fulfilling and successful lives.”

CIT aims to cultivate compassion, integrity and wisdom in individuals and communities to engender a flourishing world practicing common humanity and interdependence.

For more information, visit compassionateintegrity.org.
A diet higher in fatty fish helped frequent migraine sufferers reduce their monthly number of headaches and intensity of pain compared to participants on a diet higher in vegetable-based fats and oils, according to a new study. The findings by researchers from the National Institute on Aging and the National Institute on Alcohol Abuse and Alcoholism, parts of the National Institutes of Health; and the University of North Carolina at Chapel Hill, were published in the July 3 issue of The BMJ.

This study of 182 adults with frequent migraines expanded on the team’s previous work on the impact of linoleic acid and chronic pain. Linoleic acid is a polyunsaturated fatty acid commonly derived in the American diet from corn, soybean and other similar oils, as well as some nuts and seeds. The team’s previous smaller studies found that a diet lower in linoleic acid and higher in levels of omega-3 fatty acids (like those found in fish and shellfish) could soothe this pain pathway inflammation.

In a 16-week intervention, subjects received meal kits. One group received meals with high levels of fatty fish and lowered linoleic acid. A second received meals with high levels of fatty fish and higher linoleic acid. The third received meals with high linoleic acid and low levels of fatty fish to mimic average U.S. intakes.

The diet low in vegetable oil and high in fatty fish produced 30-40% reductions in total headache hours per day, severe headache hours per day, and overall headache days per month compared to the control group.

SOURCE: ScienceDaily.com

HEALTH NEWS

More fish fats, less vegetable oils can reduce migraine headaches, study finds

A diet higher in fatty fish helped frequent migraine sufferers reduce their monthly number of headaches and intensity of pain compared to participants on a diet higher in vegetable-based fats and oils, according to a new study. The findings by researchers from the National Institute on Aging and the National Institute on Alcohol Abuse and Alcoholism, parts of the National Institutes of Health; and the University of North Carolina at Chapel Hill, were published in the July 3 issue of The BMJ.

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Northeast College impacts local economy, provides access to high-quality education

The economic impact of Northeast College of Health Sciences (formerly New York Chiropractic College) on the local and state economy has been valued at nearly $65 million, according to a recently released report by The Commission on Independent Colleges & Universities in New York (CICU). Using data compiled from fiscal year 2019, the figure includes direct spending, construction spending, labor, and the spending contributed to the area’s economy by students and visitors. The CICU study estimated that Northeast College’s total direct spending was $27.4 million and that students and visitors to the college spent over $8 million locally.

Northeast College of Health Sciences has significantly impacted its local and state economy.

Northeast College President Michael Mestan, DC, EdD, said the college community is dedicated to the Finger Lakes region, consciously creating strong economic and professional partnerships for growth. “As we prepare [students] to become future health care leaders, they truly embrace our locale as their own, supporting local businesses and volunteering for community service with regional organizations such as Habit for Humanity of Seneca Falls.”

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BREAKTHROUGHS IN THE TREATMENT OF CONCUSSIONS

Chiropractic paired with these modalities and nutrition provide a more active treatment and recovery

BY ROBERT G. SILVERMAN, DC, DACBN, DCBCN, MS, CCN, CNS, CSCS, CIISN, CKTP, CES, HKC, FAKTR

TIME TO READ: 14-16 MIN.

THE TAKEAWAY
The synergy between chiropractic care, nutrition, the ketogenic diet, laser therapy and more combine for substantially improved outcomes.

YOUR BRAIN IS THE FOREMOST NUTRIENT-DEPENDENT and energy-demanding organ in your body. It weighs about three pounds and has the consistency of Jell-O. An injury to the brain can quickly become a threat to your body's health on a systemic level.

A concussion is a head injury from direct or indirect forces, with or without loss of consciousness, that causes persistent symptoms such as nausea, vision disturbances, dizziness, headaches and fatigue. Every year more than 3.8 million concussions are reported; many more go unreported and undiagnosed. More than 500,000 kids every year are treated in an emergency room for sports-related concussions.
Early treatment to avoid cognitive impairment

Early concussion treatment is tied to faster recovery and better long-term outcomes. Effective treatment within the first week — preferably within the first few days or even the first few hours — is critical. Appropriate care initiated in a timely span can lead to recovery in around 20 days, while delayed treatment (8-21 days after injury) can extend the time needed for recovery to 30 days or longer — and may be linked to post-concussion syndrome.¹

Concussion injuries cause shearing (tearing) of neurons in the brain. The injury results in changes to the metabolic and chemical makeup of the brain, which can affect the cells’ ability to communicate and even function normally. This can lead to apoptosis (cell death), mitochondrial dysfunction, oxidative stress, and ultimately, cognitive impairment.² The central treatment goals are to heal damaged neurons, restore neural communication and decrease the brain’s inflammatory status.

Concussion symptoms

While concussions can cause immediate symptoms, such as a temporary loss of consciousness, headaches and dizziness, some effects can continue days or even weeks after the event. This is called post-concussive syndrome, and its signs and symptoms include:

• Blurred vision  
• Nausea and vomiting  
• Difficulty concentrating/brain fog  
• Dizziness and balance issues  
• Fatigue  
• Neck pain  
• Headaches  
• Insomnia  
• Irritability  
• Memory loss  
• Sensitivity to light and noise

If left untreated, treated late, or treated incorrectly or incompletely, post-concussive syndrome can become chronic, with persistent symptoms lasting for more than three months after the initial injury. Chronic post-concussive syndrome can lead to long-term health issues such as migraines, dizziness, memory problems, brain fog, fatigue, and sleep disturbances that interfere with daily life.

While chiropractic treatment, proprioception and vestibular training, and steady-state exercise are components of my concussion protocol, added to my armamentarium are active treatment with laser therapy and nutritional supplements pointed at speeding recovery and helping to prevent post-concussive syndrome.

Laser therapy

In the acute recovery phase of a concussion, transcranial laser therapy has been shown to be highly efficacious. It helps reduce pain, swelling, and inflammation and improves cerebral circulation.³ It also helps improve neurological performance⁴ and stimulates the growth of new nerve tissue.⁵ Low-level laser therapy (LLLT) helps modulate oxidative stress and nitric oxide production and downregulates pro-inflammatory microglial cytokine expression.⁶ In my practice, I use low-level laser therapy with a 635-nm wavelength. This wavelength modulates the signaling pathways in the NF-kB inflammasome and is valuable for reducing neuroinflammation.

In general, laser therapy suppresses the pro-inflammatory mediators that are produced in excess with a concussion and helps the brain and gut cope with the cascading metabolic effects. The protective effect of LLLT may be ascribed to improved energy production in the mitochondria (the tiny power plants that provide energy in the cells) and selective modulation of pro-inflammatory mediators.⁷ Laser light is absorbed by chromophores, specialized light receptors found in all your cells. The chromophores trigger positive chemical changes that stimulate the mitochondria, producing more of the chemical signaling molecules that are key to accelerating tissue repair, reducing inflammation and pain, and creating an anti-inflammatory microenvironment in the brain.⁸
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Laser light can stimulate other healing pathways, including those that improve energy production in the cells. The light may also affect nitric oxide production in the cells, leading to improvements in the blood circulation of the injured area of the brain. All are critical for repairing the damage sustained in a concussion.

Beneficial effects of the treatment include:
- Increased angiogenesis — growth of new blood vessels
- Decreased edema (swelling)
- Increased lymphatic drainage
- Increased blood flow and cerebral oxygenation
- Decreased neuron excitotoxicity
- Anti-apoptosis — reduced cell death
- Anti-inflammation
- Increased antioxidants
- Increased production of neurotrophins — neuron growth factors
- Increased synaptogenesis — a growth of new synapses

Increasing BDNF
Laser therapy has an additional benefit that is extremely valuable for treating concussion: It stimulates the production of brain-derived neurotrophic factor (BDNF). Often called fertilizer for the brain, BDNF is crucial for repairing injured neurons and growing new ones, restoring communication among neurons, and reducing the long-term risk of neurodegeneration. BDNF helps the neurons fire together again — and neurons that fire together, wire together.

Treatment to increase the natural production of BDNF is a cornerstone of concussion therapy. In addition to low-level laser treatment to stimulate BDNF production, nutritional supplements and a ketogenic diet are needed to support BDNF production, both in the acute phase following the injury and for several weeks afterward as the brain continues to heal.

The primary goals for post-concussion nutrition are healing the structural damage from the concussion while managing the inflammatory status of the brain to prevent long-term damage. They can be achieved through dietary supplements and a ketogenic diet.

Supplements that are known to improve BDNF production and attenuate the inflammatory cascade include:

**Vitamin D** — Vitamin D is neuroprotective — it promotes the production of heat shock proteins, which help maintain neurons’ integrity and support brain cell survival after a brain injury. Additionally, vitamin D can help prevent post-concussion syndrome, where concussion symptoms linger on — sometimes for months. More generally, vitamin D downregulates the NF-kB pathway and has an anti-inflammatory effect on the brain.

**DHA and EPA** — The omega-3 fatty acids EPA and DHA are effective for reducing inflammation from a concussion. DHA has been shown to increase BDNF levels in people with traumatic brain injuries. In addition, DHA helps build robust and flexible cell membranes in neurons. EPA suppresses the production of inflammatory prostaglandins and other inflammatory chemicals and has been shown to reduce biological markers of brain injury, oxidative stress and cellular apoptosis. Both fatty acids improve the integrity of the brain’s white matter and increase the volume of gray matter in the frontal, temporal, parietal and limbic areas, improving brain structure and function.

**Glutathione** — After a concussion, glutathione levels in the brain drop, making the neurons more susceptible to damage by free radicals. Supplementation with glutathione precursors, including vitamin C, selenium, vitamin B3 and N-acetyl-L-cysteine (NAC), is essential for providing the building blocks to bring glutathione back up to neuroprotective levels. Because glutathione is a protein, it needs to be taken in the form of liposomal oral supplements to get past the stomach’s digestive juices.

**Magnesium L-threonate** — Magnesium is vital for brain function — you need it as an essential cofactor to make many of the enzymes involved in brain functions. It is significant for manufacturing the neurotransmitters that let neurons communicate. Magnesium also helps prevent delayed brain injury and post-concussion syndrome. Supplements of magnesium L-threonate cross the brain-blood barrier more effectively than other magnesium forms and don’t cause digestive upsets. We also know that high levels of magnesium in the brain and cerebrospinal fluid are related to a lower incidence of Alzheimer’s disease and brain aging.

**Taurine** — Taurine is an essential supplement for a complex and compelling reason. The neurotransmitter glutamate enters...
neurons to move signals through them via a receptor called NMDA (N-methyl-D-aspartate). Normally, NMDA receptors let controlled amounts of glutamate into the neurons, which in turn excites them and activates the brain’s areas related to learning and memory. But when a concussion injures neurons, they release large amounts of glutamate. The surge of glutamate excites the neurons too much (excitotoxicity), which leads to impaired function and even neuron death. To restore the ability to form new pathways between neurons (in other words, to restore regular learning and memory abilities), we need to block the excess glutamate. We can do this with supplements of taurine, which protects neurons from glutamate-induced neuronal toxicity.

Curcumin — The active ingredient in the spice turmeric, curcumin is a vital supplement for treating concussion. Curcumin passes through the blood-brain barrier and has powerful antioxidant and anti-inflammatory effects. After a traumatic brain injury, curcumin supplements can help reduce cognitive impairment, help stabilize energy use in the brain, and reduce membrane damage in the neurons. In animal studies and in small human trials, the supplement raises BDNF production. Curcumin also increases blood flow to the brain, protects brain cells against free radical damage, supports anti-inflammatory pathways and enhances DHA’s bioavailability.

Boswellia — Boswellia (Boswellia serrata) is an herbal extract that may be particularly beneficial for concussion patients with diffuse axonal injury (DAI), a type of traumatic brain injury resulting from a blunt injury to the head. Boswellia has been shown to encourage neurorecovery by enhancing cognitive function.

Creatine — In the brain, creatine has powerful neuroprotective effects. Levels decrease after a concussion. Raising them with supplements helps prevent brain damage following traumatic brain injury by preserving function in the mitochondria and increasing energy production in neurons. Supplemental creatine provides immediate energy to heal brain cells. Creatine also improves cognition and significantly decreases headaches, dizziness and fatigue after a concussion.
Because the impact of a concussion is unique to each individual, some of the recommended supplements may help one patient more than they would someone else — and vice versa.

**Pro-resolving mediators** — Reducing inflammation in the brain from a concussion is extremely important for avoiding long-term tissue damage. The body can usually resolve inflammation after it passes the acute phase, but the final resolution of lingering brain inflammation may be drawn-out in concussion. Supplements of special pro-resolving mediators promote the natural termination of the inflammation process by counteracting the damage from inflammatory cytokines, decreasing TNF-alpha and IL-6 synthesis, and increasing anti-inflammatory IL-10 synthesis.21

**Acetyl L-carnitine** — Acetyl L-carnitine energizes the brain, increases the neurotransmitter levels needed for memory, focus and learning, and repairs damage to brain cells.22 It also helps increase the levels and components of the neurotransmitter chemicals needed for memory, focus and learning.

**Alpha-lipoic acid** — Alpha-lipoic acid lowers oxidative stress at the blood-brain barrier (BBB) and is an excellent antioxidant source.23 Alpha-lipoic acid’s anti-inflammatory and antioxidant properties help reduce edema and preserve BBB permeability following a brain injury.24

**Ferulic acid** — A powerful natural antioxidant derived from plants, ferulic acid helps speed healing by increasing glutathione levels and reducing neuron death in the brain. It may also help with memory problems caused by a concussion.25

“Super Five” brain supplements: DHA, pro-resolving mediators, magnesium L-threonate, glutathione and curcumin.

**The Ketogenic Diet and concussion**

After a concussion, following a ketogenic diet can be quite beneficial for speeding recovery. Importantly, ketones trigger the expression of BDNF, and the diet offers other significant benefits in concussion. After a concussion, the brain’s ability to metabolize glucose is altered. Providing an alternative energy source in the form of ketones has been shown to help maintain energy levels in brain cells by helping prevent ATP depletion in the mitochondria.26

Ketones help prevent neuronal cell death and help quell reactive oxygen species and inflammation. They also increase mitochondrial glutathione levels by activating the Nrf2 signaling pathway, which plays a pivotal role in triggering inflammation.27 The ketogenic diet also stimulates autophagy in the brain, helping to clear away cellular damage to neurons.28 Finally, the ketogenic diet effectively reduces neuroinflammation by inhibiting the NF-kB inflammasome and producing the pro-inflammatory cytokines TNF-alpha and COX-2.29

Patients with concussions and post-concussive syndrome can be challenging to treat. The addition of laser light application, supplements and a ketogenic diet has revolutionized my approach to treating concussion injuries. The synergy among these added elements has substantially improved my clinical concussion outcomes.

ROBERT G. SILVERMAN, DC, DACBN, DCBCN, MS, CCN, CNS, CSCS, CIISN, CKTP, CES, HKC, FAKTR, is a chiropractic doctor, clinical nutritionist, national/international speaker, author of Amazon’s #1 bestseller “Inside-Out Health,” and founder and CEO of Westchester Integrative Health Center. He graduated magna cum laude from the University of Bridgeport College of Chiropractic and has a Master of Science degree in human nutrition. The ACA Sports Council named him “Sports Chiropractor of the Year” in 2015. He is on the advisory board for the Functional Medicine University and is a seasoned health and wellness expert on the speaking circuits and in the media. A frequently published author in peer-reviewed journals and other mainstream publications, he is a thought leader in his field and practice. His new book, “Superhighway to Health,” was published in June 2021. He can be reached at drrobertsilverman.com.

**References** can be found online at chiroeco.com.
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DCs IN THE BIG LEAGUES

Keeping players field-ready while lifting the profession

By Nicole Schuenburg

Time to read: 12-14 min

The Takeaway
Three chiropractors for pro sports teams share tips on breaking into the industry, why it is important for chiropractic, and some of their memorable moments.

Chiropractors are now on the medical staff for nearly every professional sports team — from baseball to hockey to football to soccer — providing care to enhance athletic performance, treat injuries and minimize the risk of future injuries.

Logan University graduates Emma Minx, DC (’14), CCSP, MS, former team chiropractor for the Chicago Bears of the National Football League (NFL); Mike Murphy, DC (’95), team chiropractor for the St. Louis Blues of the National Hockey League (NHL) and St. Louis Cardinals of Major League Baseball (MLB); and Chris Williams, DC (’98), team chiropractor for the Tampa Bay Rays of the MLB and Tampa Bay Buccaneers of the NFL, share their experiences in the world of professional sports.
How does chiropractic fit within the sports medicine team?

Murphy: I have always believed in an integrated approach. Each member of the medical team knows each other’s strengths, and we’re in constant communication. Just as the players have their positions and plays, so do we, and that’s a benefit to the team.

Williams: Chiropractic is a major part of the treatment of the athletes — I would say that over 50% of all athletes of both teams with whom I work receive chiropractic care from me over the season, and there are many times in professional baseball that players from the opposing teams request to see me when in town.

Why is chiropractic care invaluable for professional athletes?

Minx: Chiropractic care allows you to impart change quickly, which is invaluable for an athlete pre- or mid-game. Chiropractic care does a great job of alleviating joint restriction without relying on medications to help reduce pain, and it helps keep the body moving well. It’s also important to remember that for these athletes, their livelihood is highly reliant on a well-moving body. If they can’t play, they can’t make money. Chiropractic care helps them perform at a high level, and also do their job.

Williams: For us chiropractors, we understand the fundamental assistance chiropractic brings to the overall well-being of the individual. Professional athletes are always striving to be one step ahead of their competitors, and they rely on chiropractic care for a reduction in discomfort, tension and restrictions as well as increased flexibility. I see the athletes feel a sense of refreshment after their adjustments and are able to focus on their performance knowing they are in line and ready to go.

What’s your most memorable moment working in the big leagues?

Minx: It was a career goal of mine to work with a professional team, and the first regular season game I worked was a Sunday Night Football broadcast game at Green Bay — the rival of the Bears. The away team locker room at Lambeau Field is very different from most stadiums; you’re walking and walking through a long, narrow hallway until finally the lights begin to get a little brighter and the crowd noise begins to get a little louder, and all the sudden, it opens up into the stadium. Walking onto the field and having the energy of a Sunday Night Football game against a rivalry team was surreal. Thinking about it gives me goose bumps because I can remember walking into the stadium and feeling like I finally accomplished this goal I had been working toward.

Murphy: The Blues’ Stanley Cup victory in 2019 was a pretty surreal moment of my career. We came close a few times, but in order to win the Stanley Cup, a lot of things have to go your way ... good players, staying healthy and, of course, winning 16 games...
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in the playoffs. It all just came together that year. What made the win so cool was getting to share it with all the people who work hard within the organization, from management and coaches to the business office, equipment and media staff. When you’re traveling and eating dinners together, the team’s success is everyone’s success.

**Williams:** There are way too many to list … being a part of the Super Bowl and traveling to the playoff games. Being on the field for the Super Bowl celebration. Working on players before and during games and seeing them do something amazing such as score a touchdown, make a sack, intercept a ball or hit a home run, and then talk about chiropractic in the post-game interview. Having the athlete call or text me for advice regarding their certain issue, which shows how much trust they place in chiropractic. Getting to know the players on a personal level and fishing or golfing together in the off-season. And probably the most-asked question has to be: “What is Tom Brady like?” To that, I answer that if he was the CEO of any company, I would purchase stock in that company because he is a born leader. Players listen and follow him.

**What kinds of injuries/types of care do you typically provide?**

**Minx:** Although in clinic I treat and evaluate many conditions, my role with the Bears was that of a technician. Occasionally, I was consulted on an athlete’s injury, but most of the time, I was under the directive of the head athletic trainer and the other orthopedics. Our role was to keep the players moving well, whether that was treating hip tightness, low-back stiffness or strains. We would also see some ankle issues, especially if they were practicing on turf, and every so often we would see a neck injury from a hard tackle.

**Williams:** In baseball, we see overuse of the same muscle groups or patterns for each position due to the fact that baseball is a unidimensional sport. Players run the bases the same way, pitchers throw with the same arm, batters bat from the same side of the plate, and players catch with the same arm. For example, for a right-handed pitcher who throws high velocity and is over 6-foot-2, we typically see left-sided sacroiliac and lower-back issues from the landing spot off the pitcher’s mound, with right-sided mid-back pain. In football, anything goes! We treat many musculoskeletal injuries that require rest and rehab.

**What’s the most important thing you’ve learned providing chiropractic care to professional athletes?**

**Murphy:** Communication is key. I was just two years out of Logan when then-Blues hockey player Kelly Chase came to me with a rib injury. During my time treating him, I contacted the trainer to discuss the injury. The trainer appreciated that phone call, and he followed up by asking me to take a look at a different player with a back injury. That was the beginning of my ongoing relationship with the Blues spanning more than 22 years.

**Williams:** Stay in your lane. I am a chiropractor and that is what I do. If I notice issues outside my scope of practice, no matter what I know, I go directly to the head athletic trainer and discuss.

**Why is a prominent presence in professional sports important for the chiropractic profession overall?**

**Minx:** Chiropractic is an important part of the sports medicine continuum, and being involved at the professional level provides legitimacy and credibility to our profession. For example, there were a couple of times patients were referred to me and said,
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“I’m not sold on chiropractic, but you work with the Bears so you must be good at what you do.”

**Williams:** When the general public takes notice that professional teams have a chiropractor on staff to care for the highly-paid athletes, it adds value to all chiropractors. I feel I am representing my profession in what I do, and I take that very seriously.

**What is your biggest piece of advice for other DCs looking to get into professional sports?**

**Minx:** Experience is key. The most beneficial thing I did to prepare myself for this opportunity was work with my high school alma mater. Working in an athletic environment, even on a small scale, was great preparation for working in the NFL. Everyone on the staff has something different to offer in an injury situation, and working with high school teams taught me how to be a team player.

**Williams:** Get to know the team’s medical staff. There are times when players need someone in the off-season, and sometimes players find their own chiropractor outside of the team. If you are treating a professional athlete, introduce yourself to the medical team so they can get to know you. For the chiropractor looking to get involved, contact the head athletic trainer at high schools, universities and colleges.

**What path did you take to get to where you are today?**

**Minx:** I played college softball, and chiropractic and Active Release Technique (ART) played a critical role in keeping me on the field. The impact chiropractic had on me as an athlete was something I wanted to provide for other athletes through my career. I chose Logan University because it was the most innovative and forward-thinking out of the chiropractic schools, and they also had an advanced sports medicine department. Additionally, I knew it was important to be certified in ART, so I worked toward earning that certification throughout school. After graduating, I worked at a clinic in Chicago that provided care for many Chicago professional teams, which is where I got the opportunity to work with the Bears. Now, as clinic director, I’m focusing on running and expanding Advanced Care Specialists in Wisconsin.

**Murphy:** I earned my degree in human kinetics from the University of Windsor, then worked with various track and hockey teams as a coach and exercise physiologist before attending Logan. In addition to working with the Blues, I own a private practice in St. Louis — Performance Chiropractic — coach hockey in the area, and teach sports injuries and orthopedics for Logan’s postgraduate department. I was previously the official NFL team chiropractor for the St. Louis Rams (2001-16), St. Louis Sting Junior Hockey NAHL, Nike Gateway Classic at Lake Forest C.C. Nike Tour, the Missouri River Otters UHL and St. Louis Athletica Women's Professional Soccer.

**Williams:** I graduated college with a double major in finance and international business. After working at a bank in my hometown for 10 months, I realized my calling was chiropractic. It was not easy going from business finance classes to biochemistry, but as in any dream, if you want it bad enough you find a way to get it done. After graduating from Logan, I worked at a practice for several years in North Carolina before moving to Tampa where I opened my own practice, and then another, which I retired from in October 2020.

NICOLE SCHULENBURG writes about chiropractic for Logan University.
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A LOOK INSIDE THE NBA ‘BUBBLE’
A DC spends 81 days during the historic time at Walt Disney World Resort in Orlando

BY SPENCER BARON, DC, DACBSP
TIME TO READ: 12-14 MIN.

THE TYPICAL NBA SEASON runs from October to April, covering a span of six months. But like every other sport in 2020, the coronavirus pandemic forced it short.

However, instead of giving up and deciding to wait until 2021 to try to return to the regular schedule, this league exhibited the same fortitude and resilience of a top athlete and found a way to continue to forge forward. The solution it came up with is known as “the bubble.”

Orlando isolation
As the name suggests, this bubble was developed as a way for the nation’s top basketball players to return to the sport they love by essentially isolating them as much as possible from COVID-19. It was set up at the ESPN Wide World of Sports Complex at Walt Disney World Resort in Orlando, where teams played from the beginning of July to mid-October.

Sabrina Atkins, DC and founding CEO of Orlando Sports Chiropractic and the official chiropractic physician for the NBA’s Orlando Magic, spent 81 days in the bubble.

“It was absolutely amazing the way two enormous industries, the Disney Corporation and the NBA, joined forces,” Atkins said. “Events of less magnitude require at least nine months of planning in advance. The NBA and Disney successfully accomplished this enormous task in three months. I think that alone is astonishing. Basically, you had an entire city built, a self-contained city. That’s the thing that blows your mind.”

One of the biggest obstacles to overcome when establishing

THE TAKEAWAY
The official chiropractic physician during the NBA’s “bubble” season of 2020 in Orlando recounts her experience working with other professionals and players while becoming a part of the “NBA family.”
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SPOTLIGHT

this city was the virus and its ability to permeate and spread. How did the NBA and Disney work together to overcome this major issue and keep everyone involved safe?

“Although I cannot speak of the details inside the bubble, I can say, they thought of everything!” Atkins said. “This was a success because they had brilliant minds working together and absolutely thought of everything.”

Expansion vs. limitation

From the outside looking in, it would appear the bubble was all about limitation. Yet for Atkins, in some ways the bubble made her world bigger versus smaller. While she has been treating Magic players since 2009, within the bubble she was able to expand this reach.

“From a sports chiro’s perspective, there’s nothing that thrills me more than being in the training room,” she says. “It’s my happy place … being the only contracted chiropractic physician for the NBA bubble, every team had access to my care. I got to see a variety of players and a variety of training rooms and the way they’re managed. The energy each team carries is very different. I got firsthand experience in each training room. It was so fun, and I learned so much. These are families! They live, eat and work together. And for a moment, I got to be a part of so many NBA families. I feel incredibly fortunate.”

The challenge of isolation

The most challenging part of her experience had nothing at all to do with the bubble itself. Instead, Atkins said that it was “being away from my daughter, Bella, for sure … when I got the call from the players association asking me if I was interested, I knew that if they were to offer this opportunity, I had to take it! This is what you prepare for as a sports chiropractor. I knew this was a once-in-a-lifetime opportunity. I knew it was an opportunity to represent women, to represent chiropractic, to represent working moms. As a result, it was something I had to do. These are the things you hope your little girl will be happy you said yes to. I had so much support from my friends, family, staff and patients. They all told me to take this opportunity. They were all very excited for me.”

Bella stayed with Atkins’ ex-husband during her time in the bubble.

“The first two weeks were really hard on me, leaving Bella
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and dealing with the guilt. It was a huge struggle. I knew I didn’t have to worry about her knowing I had the support from him and my friends. We spoke almost every day, except when she was busy having fun. We would Facetime and I would join her virtual lessons with her teacher. I would read her a bedtime story each night at bedtime.”

The second-greatest challenge was leaving her practice.

“IT was my first baby, after all,” she says. “I love my patients and I feel a real sense of responsibility and commitment to them. Leaving for three months was scary. I have an amazing team with my practice, and they kept it rolling and increased their hours to accommodate our patients while I was gone. They are a big reason I could take this opportunity. They are the true champions.”

Another challenge during her time in the bubble was self-doubt and dealing with “imposter syndrome.”

“It was my first baby, after all,” she says. “I love my patients and I feel a real sense of responsibility and commitment to them. Leaving for three months was scary. I have an amazing team with my practice, and they kept it rolling and increased their hours to accommodate our patients while I was gone. They are a big reason I could take this opportunity. They are the true champions.”

Another challenge during her time in the bubble was self-doubt and dealing with “imposter syndrome.”

“I would take walks out along the perimeter and just wonder to myself, ‘Am I really here? Me? Little old, five-foot-nothing, red-headed, freckle-faced girl from Rockmart, Ga. Am I really the chiropractic physician for the NBA bubble?’ Funny how being chosen for something like this ironically makes you question your right to be there. But I did have a right to be there. I earned my way through hard work, drive and passion for what I do. I had proven my worth and I was determined to enjoy the ride.”

Bubble friends

Would she spend another 81 days in NBA isolation?

“Yes,” she said resoundingly, “100%. The experience was one of the most profound of my career so far. I’ve been in the sports industry for 20 years and have been working with the NBA Magic for 10 years. People in the NBA industry all these years that I had never even met, I now call friends. The bubble did that for us.”

Atkins said she had to earn trust across the board, from the athletic trainer to the players.

“That is the biggest honor of them all,” she said. “Earning the trust of the athlete was one thing, but more importantly, the trust of the athletic trainer in charge of that player’s care and well-being. They protect their players fiercely, as they should. Like I mentioned before, these teams were families. I was welcomed and had the opportunity to work alongside some amazing ATCs, PTs, LMTs, DOs and MDs. I want them to know that they’re working with someone who truly cares about and wants the best for them and their team.”
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Work/life bubble balance
Atkins said that not all her time in the bubble was consumed by work.
“\text{I spent a lot of time outdoors taking pictures of the landscape,} she said, \text{describing the flower blossoms inside Disney and a multitude of mushrooms that were growing in the marshy areas on the resort.} \text{I’m a nature lover, so I would spend a lot of time walking around the trails. I even took my hammock. I found a lovely spot for yoga. I was able to play golf and ride my bike. We played whiffle ball and pickleball too. I even went for a boat ride. And, of course, there was the resort pool — I gained a few hundred more freckles! It was cool being in a place that afforded us these options so that we could maintain a work/life balance.”
In the end Atkins says the bubble experience was part of making history.
“All the ‘feels’ that come with knowing that I played a part in making history by participating in the first-ever NBA bubble! It was a great experience on many levels. An astounding accomplishment.”

\text{SPENCER BARON, DC, DACBSP, served as a team chiropractic physician for the Miami Dolphins for 19 years and is author of “Secrets of the Game.” He currently serves as the team chiropractor for Nova Southeastern University Sports Medicine and is the president of NeuroSport Elite. In 2001 he helped establish the Pro Football Chiropractic Society and the Pro Baseball Chiropractic Society, bringing together some of the best sports chiropractors in the nation. Now he directs the same type of efforts to DoCS (Doctors of Chiropractic Sports at doc-sports.com), an organization committed to creating camaraderie and coaching within the chiropractic profession.}

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HELP ATHLETES GET ‘TWO FEET AHEAD’ IN THEIR SPORT

BY KEVIN WONG, DC
TIME TO READ: 10-12 MIN.

THE TAKEAWAY
Flat feet or arch issues in athletes and everyday patients can move all the way up the chain to create problems, even in the neck and jaw. Start with the feet to identify these faulty biomechanical patterns.

ATHLETES AND ACTIVE-LIFESTYLE INDIVIDUALS OF ALL LEVELS will touch our practice in some form or another during our careers as chiropractors. Even if one does not specialize in treating sports injuries, it never fails that the opportunity to treat someone in this category will arise frequently. These days athletes come in all ages, shapes and walks of life. Young children often begin sports at an early age, and we see people staying active well into their elderly years. Most of these patients begin playing sports without realizing the extent of the physical demands that will be placed on their bodies. Caring for patients engaged in sports and athletic performance does not have to be complicated or even convoluted. Most of the time these individuals can have a unifying theme where we see patterns exist in the biomechanics or movement patterns of their bodies. These observations can offer not only an explanation of how they injure themselves but how we as chiropractors can treat them and help prevent future ailments as well.

The role of the arches
Let’s start by examining what starts to happen to most of us when we are young. The 26 bones constituting the feet are the foundation of our human house. The feet not only support the weight of the body but also perform vital biomechanical functions during all weight-bearing activities like standing, walking and running.

The three functional arches, forming the plantar vault under each foot, are fully formed by ages 6-7. No matter how much longer the foot grows as we mature, the arch support is set by age 7. The existence of the three arches is often unknown by the general public because it is simply not taught by the medical professionals from whom people generally seek care.

As chiropractors we are trained to look outside the proverbial box for the cause of a patient’s pain and dysfunction and not just chase symptoms. Bearing that in mind, let’s investigate a situation I have observed in my practice for upwards of 87% of the population whose arches have fallen to some degree.

This is referred to as excessive or overpronation, and this phenomenon will initiate the collapse of all three arches in a mild, moderate or severe state. After age 7, factors like genetics, activities/sports, injuries, types of shoes worn, etc., play a role in how quickly and how severely the arches fall. Keep in mind that the arch collapse occurs slowly over time, so patients usually don’t realize it is happening until years later.

Foot instability and its effects
To keep this in perspective, let’s look at the numbers. In my experience, I have seen that 85–87% of people excessively pronate; 3-5% supinate (feet roll out instead of in); and 10% have healthy arches and weight-bearing function. This means at least 8 out of 10 people walking into your clinic, including...
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those playing sports, have flat feet to varying degrees. That is a lot of patients exhibiting excessive foot pronation for us to identify. Since most of the patients seeking care in our clinics have flatter feet, we also see common clinical problems that present with them. Are you looking for this in your patients? Why should you?

Look at the diagram above and start with the feet. This diagram is referred to as the Crooked Person because it symbolizes and describes many of the athletes who are playing sports. Notice how the picture indicates this person has a left foot that is overpronating worse than the right. Normally, excessive foot pronation is bilateral (both feet) but asymmetrical (one foot is flatter than the other). Now use your logic and follow what is occurring from the foot/ankle upwards. Don’t forget, this process starts from the bottom up. Yes, when scanning the picture, one can observe effects all the way up to the head and jaw.

Left foot excessive pronation starts a chain reaction

Observation on patient population whose arches have fallen to some degree

Start with the left foot and notice how it has dropped toward the floor because all three arches are collapsed. The dropped foot puts stress on the inner ankle and turns the tibia bone medially (inward). The medial tibial rotation pulls the patella in a medial direction as well. The femur bone follows suit and as it rotates medially it also puts lateral stress on the hip joint. The medial stress on the left hip pulls and tilts the left pelvis down lower than the right hip. Left lateral curvature of the lumbar spine along with a compensatory slight curvature of the thoracic spine can also be seen. The biomechanical pattern finally ends up un-leveling the shoulders. So, what does this explanation mean to us chiropractors?

Going up the chain

The effects of excessive pronation alter normal, healthy movement patterns. The patient is now experiencing increased stress and biomechanical wear and tear at the medial ankle, knee, kneecap, lateral hip, pelvis, spine, shoulders, neck and jaw.

In essence, every time they are performing weight-bearing activities, a shock wave will shoot up from their heel to their head and put increased stress on all the joints and their related soft tissues. This has ramifications for athletes who often put repetitive and sustained physical demands on their bodies. The wear and tear created by the flat feet will eventually cause stress on the bones and soft tissues and they give way to injuries. It’s only a matter of time for our patients. Look at where the red hash marks are on Fig. 2 above. Do you know of any common injuries you see occurring in these areas?

Some of the more common ailments we see from athletes or physically active patients are:
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The wear and tear created by the flat feet will eventually cause stress on the bones and soft tissues and they give way to injuries.

- Plantar fasciitis
- Metatarsalgia
- Achilles tendonitis
- Shin splints (anterior/posterior)
- Osgood-Schlatter disease
- ACL tears
- Meniscus injuries (medial more than lateral)
- Iliotibial band pain
- Hip pain
- SI joint pain
- Lower back pain
- Mid/upper back pain
- Shoulder/rib pain
- Neck pain
- Jaw pain

If you are wondering where I got any of these areas from, then go back up to the first diagram of the Crooked Person and follow the progression of the excessively pronated feet that eight in 10 of the patients presenting to your clinic have. These are conditions you see frequently in athletes and non-athletes alike, so the principles we are talking about apply to many patients you are and will be helping.

Treating foot instability for improved function and performance
Aside from chiropractic care that includes adjustments, appropriate physiotherapy modalities, exercises and home care, please do not forget to determine needs for the arches of the patient's feet. A custom-made, three-arch, flexible foot orthotic will make a huge difference in the feet as the foundation of their house.

Properly made custom foot orthotics from a weight-bearing scan or foam mold will help athletes and active-lifestyle individuals. In this case, specific measurements are taken from the scan or cast and factored in along with the height, age, weight and sex of the patient. This ensures a custom product. We are not talking about the store-bought, off-the-shelf orthotics, as those tend to have only one (maybe two) non-custom arch supports.

Reducing stress and strain
When the three arches of each foot are supported properly, the forces starting with the feet and moving through the axial kinematic chain are symmetric. The body will be under less stress and strain.

Athletes can perform at their maximum level and we can also greatly reduce the incidence of sports injuries. When one understands the “Crooked Person” is a high frequency of the patients we see, we essentially have a picture that is a road map to success. Just start from the feet, follow the stress pattern up the body and it gives you understanding of not only how to treat the patient, but how to help protect them in the future as well.

KEVIN M. WONG, DC, is a graduate of the University of California-Davis and a 1996 graduate of Palmer College of Chiropractic West. He has been a practicing chiropractor and continuing education instructor for over 24 years and is the owner of Orinda Chiropractic & Laser Center in Orinda, Calif. His practice has an evolving influence on the course material he teaches chiropractors, chiropractic assistants and students. As a member of the Foot Levelers Speakers Bureau since 2004, he is a frequently-requested speaker on the topics of extremity/spinal adjusting, foot biomechanics, orthotics and ergonomics, and teaches over 120 hours per year in the U.S. and internationally. See continuing education seminar opportunities with Foot Levelers speakers at footlevels.com/continuing-education-seminars.
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THE TAKEAWAY
Education is key in developing relationships with student athletes, parents and coaches to see the value of chiropractic with injury prevention, exercise and training, preventing dehydration and heat-related illnesses, concussions and more.

MARKETING MATTERS
AN ESTIMATED 8.6 MILLION SPORTS AND RECREATION INJURIES OCCUR ANNUALLY, with a large majority (64.9%) impacting athletes under 24 years of age. While this may make it seem that sports injury treatment should be the focus for doctors of chiropractic who want to start working with K-12 athletes and teams, one DC with decades of experience working with youth disagrees.

The biggest opportunity in youth sports
"Chiropractors, in general, are great educators," says Alan Sokoloff, DC, or “Dr. Sok,” as he’s more commonly known. Sokoloff is the founder of Yalich Clinic Performance and Rehabilitation in Glen Burnie, Md., and team chiropractor for the NFL’s Baltimore Ravens and the University of Maryland Terps. But he’s also worked with young athletes for 20+ years as a passion.

“We typically do a very good job of educating patients on condition[s] they have, what we're going to do, [and] what we expect them to do,” Sokoloff says. “When it comes to youth sports and youth athletics, that's where I see the greatest opportunity, one of the greatest ways to solidify our profession for years to come.”

Sokoloff adds that many times when chiropractors want to work with youth or a high school team, this often places them in a reactionary position.

“I see our value way before that,” he says. “I see our value in education on injury prevention, exercise and training, preventing...
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dehydration and heat-related illnesses, and one that’s very near and dear to me is education on concussions and concussion prevention. It’s educating the kids, educating the parents and educating the coaches.”

Ways to get an ‘in’

If your goal is to work with K-12 athletes and teams, what’s the best way to get involved in increasing their education?

“Start with your local county recreation leagues,” suggests Sokoloff. “Rec leagues typically have no support in the way of educating their coaches, their parents or their kids. Around 95% of all youth leagues don’t have that. So, there is a need there.”

The next step is to figure out who to approach.

“I like to approach things from the top if I don’t know anyone in that league, like the commissioner,” Sokoloff says, “or from the bottom, like a coach or influential parent, if I know someone in that league.”

For instance, one of Sokoloff’s patient interview questions is about social habits. If the patient reveals that they are a coach, Sokoloff shares that working with youth athletes is a passion of his. He then offers to spend 15 minutes with the parents and another 15 minutes with the coaching staff to talk about important topics such as concussion awareness and prevention, strategies for preventing heat-related illness, and preventing musculoskeletal injuries through exercise and practice structure.

“For years, I would go to individual teams and, while the kids were practicing, do a little workshop for parents,” Sokoloff says. “Then I’d do the same thing for coaches. Then I’d do them for leagues. That blew up to the point where I was doing one of these lectures every other day. Now, I teach 600-800 coaches three times a year through the county. The county requires all coaches to take the always-updated class every three years.”

Best practices for working with youth athletes and teams

Once you get the opportunity, Sokoloff shares that the next step is asking the coaches about their concerns. Then he works with them to come up with different strategies to overcome these issues. This might include switching to stretching after training versus before, for example, or offering tips for preventing some of the most common injuries in that sport.

Working with parents is important, too. “The kids aren’t going to say, ‘Hey, I need to go see Dr. Sokoloff,’” he says. “It’s going to be parents and coaches.”

What’s the best way to reach this audience?

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Katharina Knaub 1, Tina Sartorius 1, Tanita Dharsono 1, Roland Wacker 1, Manfred Wilhelm 2,3 and Christiane Schün 1,4

1 BioTeSys GmbH, Schelztorstr. 54-56, 73728 Esslingen, Germany
2 Natural and Economic Sciences, Department of Mathematics, Ulm University of Applied Sciences, Albert-Einstein-Allee 35, 89081 Ulm, Germany
3 Correspondence: t.sartorius@biotesys.de; Tel.: +49-711-3105-7138
4 Received: 18 July 2019; Accepted: 13 August 2019; Published: 16 August 2019

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MARKETING MATTERS

“Mark Sokoloff says. “You’re just shooting your information all over that room. Some people get it, some people don’t. You’re not going to hit everybody, so you try to get to as many people as you can.”

Educating the parents is also a great way to get the young athlete into your office as a patient. If their child is in need of a specialist, for instance, who are they going to send them to?

“Someone they know, someone they trust and someone who has educated them,” Sokoloff says.

At some point, if you can, speak to the kids as well, Sokoloff adds. But keep these educational sessions short, like five minutes in length. Go any longer and young athletes will likely tune you out.

Success starts with your own education

While educating coaches, parents and youth is important, DCs need to educate themselves first, Sokoloff says.

“Don’t read a book and all of the sudden you’re an expert in X, Y, Z,” he says. “Don’t watch a webinar and now you’ll go and teach that lecture. You need to learn that information, live that information and practice that information.”

Sokoloff says get the training needed to work with certain conditions, prevent injuries in certain sports, and work with younger athletes.

“It’s a team approach,” he says. “We need to stay in our lanes and don’t set ourselves up for failure. No one is educating the parents, coaches and kids the way they need to be on simple things. If you can help one kid, it makes a huge difference.”

CHRISTINA DEBUSK is a freelance writer who specializes in content related to natural health and wellness, personal development and small-business marketing. She can be contacted through ChristinaMDeBusk.com.

References can be found online at chiroeco.com

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THE CHIROPRACTIC BENEFITS OF IoMT
The Internet of Medical Things, from your office to patient care, is here

BY SPENCER BARON, DC, DACBSP
TIME TO READ: 8-10 MIN.

THE TAKEAWAY
From chatbots to devices that generate, collect, analyze or transmit health data, the IoMT can save chiropractors time and lead to more efficient and correct diagnoses.

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The question to ask yourself is whether you’re taking full advantage of the internet’s capabilities within your chiropractic practice. If you’re not utilizing the Internet of Medical Things (IoMT), your answer may be no.

What comprises the IoMT?
“IoMT are a group of technology systems, software or objects that allow the involvement of artificial intelligence to make health information gathering and sharing more efficient, more accessible, and easier to share amongst patient and doctor, and doctor to doctor,” says Jenna Brennan, DC, of the devices connected to the internet or Bluetooth technology.

Many of us already use the not-necessarily-medical “Internet of Things” (IoT) in our daily lives. We have smart thermostats controlling the temperatures in our home or smart smoke detectors to alert us via smartphone if there is a fire. An Amazon Echo is another example of artificial intelligence capable of handling some of our day-to-day needs. The IoMT takes this same type of convenience and incorporates it into the health care system.

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“IoMT is definitely an interesting role to bring to chiropractic because the practice tends to shy away from technology over the years,” says Brennan, adding that “the use of IoMT can offer a lot to the field of chiropractic.”

IoMT for DCs

One value that IoMT stands to offer DCs is helping patients recognize when a visit to the chiropractor can help resolve a health-related concern. Chatbots can assist with this on websites or even text messaging.

Chatbots are computer programs that are able to answer basic questions online, almost as if communicating with a real human. Through sharing their symptoms or injuries, the chatbot can tell patients what type of medical care they may need.

“Now the patient can be sent to the chiropractor for certain injuries and pain instead of being sent to the ER, which is meant for more emergent and life-threatening conditions,” says Brennan. “I don’t know how many times I have heard of a patient or friend having to go to urgent care or ER because they sprained their ankle or threw their back out doing yard work when they could’ve saved time and money being sent to their chiropractor for evaluation.”

For DCs who specialize in internal and functional medicine practices, the IoMT may offer even more value. These practitioners can use the information obtained to better diagnose and treat patients. This could include collecting data regarding the patient’s electrical activity, internal temperature and blood sugar levels.

Another value the IoMT offers DCs involves gathering patient health records and information while also creating a more efficient process for sharing this information between doctors and offices. This helps reduce the time and frustration of trying to send or retrieve patient data.

“The objective with IoMTs is that there will be medical devices that are able to generate, collect, analyze or transmit health data, X-rays and images and then connect to health care provider networks, which eliminates the waiting to call an office or imaging center to then have to send a fax or prescription or release of records; or send the patient on a runaround to gather their info to only get a CD which nobody’s computer uses anymore to not have the image that you sent for,” Brennan says. “This fact alone is critical to more efficient and correct diagnoses and can eliminate a lot of wasted time for the doctor and the patient.”

IoMT value to patients

IoMT provides more accessibility to patient health care providers while also increasing patients’ access to their own health records and information. Brennan indicates that this allows patients to “track their own data and internal markers to prevent injury or chronic diseases to better their quality of life.”

One example of this specific to chiropractic is related to patients involved in sports. “Being able to track markers for performance is a huge part in rehabbing and tweaking certain markers to create more optimal performance,” says Brennan.

But IoMT offers value to other patients as well.

“If the chiropractor or therapist is providing post-hip-surgery rehab and treatment and that patient has biosensors placed to record data related to the nerve stimulations, blood supply, pressure applied, bone density, etc., related to that hip, the rehab will be 10,000% more efficient for everyone and most likely lead to a cost cut for the treatment as well,” Brennan says.

Incorporating IoMT into your practice

“As a field, we have incorporated more technological aspects to make our lives easier and to bring healing to patients,” says Brennan, citing the use of EHRs, digital X-rays, electrical muscle stimulation machines and more. One option for wading into this technology is with chatbots.

“Chiropractors can definitely benefit from chatbots that help triage patients out of the office and help treat those that maybe cannot make it in the office,” Brennan says. “We got a glimpse of what that looks like with COVID this past year and telehealth.”
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The IoMT can also be utilized with the patient’s own devices, some of which include the Fitbit, Apple watches, cardiograms and more. Brennan considers all of these devices when formulating patient treatment and management plans within her own office, incorporating the information they provide to develop rehab programs and movement protocols.

Take advantage of the technology
“At the end of the day, chiropractic is wonderful but definitely has struggled to remain a powerhouse in the ever-evolving world of technology,” says Brennan. “We harness healing with our hands-on techniques and allowing the body to heal on its own. However, with the world and society as it is developing, the use of sensors and software can only benefit how many patients chiropractic can reach, the education and health efficiency that chiropractic can provide, and improve patients’ quality of life.

“Being able to communicate faster and more directly with other providers and patients will allow our offices to function at a higher capacity and see more people.”

SPENCER BARON, DC, DACBSP, served as a team chiropractic physician for the Miami Dolphins for 19 years and is author of “Secrets of the Game.” He currently serves as the team chiropractor for Nova Southeastern University Sports Medicine and is the president of NeuroSport Elite. In 2001 he helped establish the Pro Football Chiropractic Society and the Pro Baseball Chiropractic Society, bringing together some of the best sports chiropractors in the nation. Now he directs the same type of efforts to DoCS (Doctors of Chiropractic Sports at doc-sports.com), an organization committed to creating camaraderie and coaching within the chiropractic profession.

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FOR MORE THAN 30 YEARS, technology related to personal computers, laptops, tablets and smartphones has been advancing and expanding into every population around the world. Most Americans now own some type of cellphone, with 85% of them owning a smartphone compared to 35% in Pew Research Center’s first survey in 2011. The use of personal computers and tablets has been implemented into our school systems for nearly every age group, and while technology can be a wonderful tool and has changed our lives in so many positive ways, there have been unintended consequences from the use of these devices. One of them is tech neck.

Tech neck is really nothing more than the posture developed from having the head in a forward flexed position for long periods of time. It is getting more attention now than ever before because it is essentially affecting every age group in our population.

The rise of tech neck
When virtual learning and working from home were widely instituted in response to the COVID-19 pandemic, it created an environment that exacerbated the ill effects of using personal computers and tablets due to inadequate workstations.

There are countless cases of teens slouching over their computers while sitting on their beds for hours at a time. Dining tables and couches became the office desks for scores of people attending virtual meetings. All these temporary adaptations unexpectedly stretched on for over a year, forcing a habituation of weak postural patterns. These patterns contribute to neck pain, headaches, upper back and shoulder pain, stiffness, low-back pain, chest tightness and fatigue.

A recent study of upper body and limb postures across technologies and handheld device use in college students revealed that regardless of the device used — phone, tablet or laptop — all devices altered posture. However, frequent, regular use of tablets created greater deleterious effects than regular use of other handheld devices/technologies. Weak posture is a pattern that results from habitually overusing the neck and upper extremity flexors while the extensors are disengaged. It is the classic Upper Crossed Syndrome (USC). UCS results when the muscles in the neck, shoulders and chest become shortened, usually as a result of repetitive activity that produces poor posture.
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The muscles of the upper extremities that are typically the most affected are the upper trapezius, the levator scapula, and the pectoralis major and minor which become tight and shortened. But do not forget the lower extremities and their role in posture. Lower Crossed Syndrome is also a major player in posture and there are some important keys in evaluating your patients to make sure that we have appropriate engagement of the lumbar extensors and gluteus major and minor and that the hip flexors are not overactive. Patients that present with this Upper and Lower Crossed Syndrome are our classic low-back pain, neck pain patients. So, let’s talk about quantifying posture and evaluating one of the most-often-missed contributing factors to postural weakness — the feet.

The role of a symmetrical body foundation
Since posture starts at the ground, it is important to determine if we are starting with a symmetrical foundation.
Prior to the scanning technology we enjoy today, the amount of navicular drop was measured using a Posture Stability Index card with an ink dot on the navicular bone. The distance that the navicular bone dropped between sitting and standing, which represents the amount of pronation, was measured on the card. The most significant finding in my experience is that the left and right foot rarely flatten out symmetrically. This creates an imbalance that transmits up the kinetic chain, affecting ankles, knees, hips, pelvis and spine.

If we fail to evaluate the feet and provide custom orthotics when appropriate, those biomechanical distortions are replicated every time the patient stands or takes a step. This repetition becomes the neuromusculoskeletal pattern we call posture.

Only when we interrupt the aberrant pattern with a more efficient engagement of postural tone will we truly create strong functional posture. Scanning the feet of every patient with a digital 3D laser scanner ensures that this information is available to make appropriate clinical decisions and effective treatment plans.

Posture has long been considered an important part of chiropractic care, and the health consequences of poor posture have been well-documented. Pain, movement disorders and altered physiological function are significant quality-of-life issues and the onset is insidious and progressive.

Treating postural imbalance
Posture can and should be evaluated with all our patients, and thanks to advances in technology, there are apps that allow us to quantify posture, document it and then create a trend analysis as care progresses.

We have an opportunity to educate and equip our patients with strategies to improve and protect healthy posture. In my practice I use a posture app, and the most significant thing I consistently see is that functional head weight is often 2-3 times greater than the actual head weight based on anterior cervical translation. This often means that a 12-13-pound head acts like it weighs 25-35 pounds or more. This creates a compressive force on the cervical discs and can accelerate the degenerative process over time.

Anterior cervical translation is a result of habitually having the head in flexion, resulting in short, tight cervical and upper extremity flexors and lengthened, inhibited cervical and upper extremity extensors. This pattern can be reversed, but it

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Your head weighs approximately 11.7 lbs., however, due to the physics of your postural deviations, your “effective head weight” changes, which means it “feels heavier” to your body. The effective weight of your head for the exam on 11/17/14 was 55.7 lbs. and on the follow-up exam dated 4/2/15 it weighed 25.8 lbs., accounting for a total change of 53.7%.
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 Poor posture is a neurological habit that can be corrected by creating new neurological habits.

TAKES A MULTIFACETED APPROACH TO ADDRESS ALL THE COMPONENTS INVOLVED. IT REMINDS ME OF THE OLD SEESEAW ON A PLAYGROUND — THE INFLUENCES THAT CREATE THE ANTERIOR CERVICAL TRANSLATION FAR OUTWEIGH THE INFLUENCES THAT CREATE GOOD POSTURE. IT IS TIME TO INSERT SOME STRATEGIES TO BALANCE THE SEESEAW OF TECH NECK AND POOR POSTURE:

**Step 1.** Evaluate the feet and prescribe custom orthotics when it’s appropriate. Custom orthotics neurologically improve the engagement of postural tone with every step your patient takes.

**Step 2.** Use adjusting techniques that encourage the posture that is desired. There are techniques that allow us to adjust the patient in a standing position while the patient is rehearsing the desired posture. The sensory input in those positions results in an awakening of the appropriate postural response.

**Step 3.** Teach your patients to practice holding their tablet or phone directly in front of their face when looking at it. It’s not easy, but with time it can become part of the habit of good posture.

**Step 4.** In addition to supporting your patients’ posture during the day with orthotics, remember to support them at night with an appropriate cervical pillow. This encourages the appropriate cervical curve important for good posture.

**Step 5.** Postural exercises are an important key to creating new neural networks that engage postural tone habitually. Poor posture is a neurological habit that can be corrected by creating new neurological habits. Activating the extensors of the upper and lower body with low-tech resistance training is a highly effective remedy for better posture. I encourage my patients to complete a posture training program in the office so they can learn how to do it correctly before they apply the routines at home. If our patients are going to create new posture, they will need to apply these exercise routines at home to overcome the time they spend working or studying.

I am encouraged by the response I have received from my patients in their desire to overcome the problems caused by tech neck. They want good posture and are grateful to receive the tools they need to accomplish it. The reward comes when we re-evaluate their posture and prove that it is better.

BRIAN JENSEN, DC, is a graduate of Palmer Chiropractic College and owner of Cave Spring Chiropractic in Roanoke, Va., and has been in practice for over 30 years. As a member of Foot Levelers Speakers Bureau, he travels the country sharing his knowledge and insights. See continuing education seminars with Foot Levelers Speakers at footlevelers.com/continuing-education-seminars.

References can be found online at chiroeco.com
PREVENTING HIP SURGERY
Tips for chiropractic patients and care providers

BY DANIEL KEADLE, DC
TIME TO READ: 9-11 MIN.

THE TAKEAWAY
Age, degeneration, activity level, leg length and levels of osteoarthritis are all considerations when putting together a surgery-prevention routine for patients.

IN THE UNITED STATES, 3-7% OF OLDER ADULTS WILL DEAL WITH SOME FORM OF HIP OSTEOARTHRITIS during their lifetime. “Osteoarthritis” or “OA” is the proper term for overuse or age-related degenerative joint conditions. While there are other types of hip problems such as fractures or soft-tissue injuries, the majority of people will be diagnosed with and seek care for the degenerative type.

Hip replacements and alternative methods
These degenerative hip problems result in almost 200,000 hip replacements each year in our country. Not only are these surgeries expensive, but they involve intense and time-consuming rehabilitation, as well as the potential for a variety of postsurgical problems.

While some individuals may truly need surgery, many others are either borderline surgical candidates or not prepared to go under the knife without first exhausting other treatment options. In these cases, a combination of appropriate exercise and chiropractic care may significantly delay the need for surgery or even help avoid it altogether.

Exercise for supporting muscles
Exercise and physical activity are widely known to have a positive effect on the health and condition of our joints. When looking at the hip, we find a large “ball and socket” joint between the femur and pelvis that bears much of our weight when doing any “vertical” activity such as walking, running or standing.

Surrounding that joint and providing dynamic support is a complex arrangement of muscles including the glutes, hip flexors, quads, hamstrings and adductors, just to name a few.
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Weakness in these muscle groups can put unwanted, additional load on the hips and result in excess wear and tear. By engaging in regular exercise, especially resistance exercise, we can ensure that the supporting muscles around the hip are strong and have the ability to support the hip throughout our daily activities.

Another added benefit of physical activity is that exercise can stimulate chondrocyte activity in joints. Chondrocytes are the small, cellular structures that maintain and produce the cushion-like connective tissue surrounding and lining most of the joints in our body. If we can stimulate chondrocyte activity, we can aid in the physical process of repairing damaged tissue and building new, healthy tissue.

Strength exercises vs. cardio
If resistance exercise is good, what about cardio? Like walking or running? The answer is somewhat complex. Many studies show that in the context of hip health, it may be possible to overdo certain types of cardiovascular activity. A study from 2015, which measured how much load our hips experience when moving, showed that when walking, an average adult will experience hip contact forces of approximately 4 to 5.5 times their body weight. That load may increase up to 10 times our body weight when running 12 km/h (approximately the pace of an 8-minute mile).

For example, a 180-pound individual will experience hip contact forces of nearly 1,000 pounds when walking, and upwards of 1,800 pounds when running. Does this mean cardiovascular exercise is necessarily bad for the hip? No, but we must understand that those hip contact forces do create a cumulative effect over time. Multiple studies show a positive relationship between a runner’s age, running pace, total mileage and degenerative hip disease, likely due to the increased hip contact forces that occur during running.

What does this mean for patients? While we can’t make specific recommendations for cardiovascular exercise, we do know that extremely high mileage combined with a fast running pace could put you at a higher risk for degenerative hip problems, and the more degeneration there is, the more likely you are to encounter problems. In the context of hip health, this means a regular walking routine may benefit patients greatly, while running must be carefully managed.

If you want to engage in more vigorous cardio, try something like swimming or an elliptical that takes some of the load off your joints.

In adding exercise to a “surgery-prevention routine,” the chiropractor or physical therapist should determine what types of movements and loads are appropriate while making sure patients follow proper and safe form. When utilized properly, exercise can play a valuable role in delaying the need for surgical intervention.

Research and the chiropractor’s role
Numerous studies have been aimed at the relationship between chiropractic/manual therapy and degenerative hip disease, but one highlights the benefits extremely well.

A 2004 study compared “manual therapy” to “exercise therapy” in 109 individuals who were previously diagnosed with hip osteoarthritis. The exercise group focused on active exercises to improve muscle function and joint motion. The manual treatments (aka chiropractic care) included: identifying and stretching the short/tight muscles within the hip complex, traction of the hip joint, and manipulation of the joint in “each appropriate limited position.”

The participants were split into two groups and treated over a five-week period, and the results were very impressive:

- Primary outcome success rates were 81% for manual therapy compared to just 50% for exercise therapy;
- The manual therapy group had significantly better outcomes for improved range of motion, hip function, stiffness and pain;
- The positive outcomes experienced by the manual therapy group endured after 29 weeks.
In addition to manipulating the hip joint, another consideration should be leg length difference (LLD), a sign of biomechanical issues with the pelvis, SI joints and/or lumbar spine. Interestingly, research shows a potentially strong relationship between LLD and the occurrence of degenerative hip disorders, likely because altered weight-bearing on a joint could be a contributing factor for osteoarthritis. While there are other methods of analyzing pelvic/low back function and alignment, the research focuses on LLD because it’s easily quantifiable and reliable.

Regardless of what methods or techniques are used to accomplish this, addressing these areas may significantly reduce the need for surgical intervention and have a positive impact on patients’ overall function and pain levels.

**Variable options**

While some patients truly need surgery to protect their quality of life, many others have options when it comes to degenerative hip issues.

Appropriate exercise programming, combined with specific chiropractic care, may drastically improve an individual’s function and mobility, significantly reduce their pain levels, and either delay or avoid the need for surgical intervention.

**Primary outcome success rates were 81% for manual therapy compared to just 50% for exercise therapy.**

**LLD and stressors**

Researchers propose that pelvic tilt or torsion, visible through measured leg length difference, places unequal stress/load on the hips and potentially reduces the contact area of the cartilage within the joint.

The combination of these stresses may increase pressure on the cartilage and bone within the joint, leading to degenerative hip conditions. We see evidence for this in a survey of 100 patients who were diagnosed with hip osteoarthritis. The researchers measured each person’s LLD just prior to hip surgery and found that their hip osteoarthritis was on the side of the longer limb 84% of the time. Other studies have shown very similar findings with regard to knee osteoarthritis as well.

For chiropractors treating patients with degenerative hip issues, the focus is on restoring normal joint motion to the hips, as well as eliminating or reducing the amount of measured leg length difference.

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A ‘TOP-DOWN’ MODEL FOR CORRECTING ATHLETE LOWER BODY ISSUES

Neurology and injuries to the knees, ankles and more

BY CHRISTINA DEBUSK

TIME TO READ: 6-8 MIN.

THE TAKEAWAY
Chiropractic and functional neurology is showing possible connections between concussion and lower-extremity issues at all levels of play, with women sustaining injuries at a higher rate.

AN NFL PLAYER HAS A 41% RISK of developing a lower-extremity injury at some point in the season, according to a 2020 study published in the American Journal of Sports Medicine. Combined, this results in a loss of 56,700 days of play each year. This research found that the knee is injured most often in pro football, accounting for 29.3% of lower-body injuries. The ankle is next at 22.4%, followed by injuries to the thigh (17.2%) and foot (9.1%).

A 2019 study in the Orthopaedic Journal of Sports Medicine adds that lower-extremity sports injuries are also relatively common in high school-level athletes, especially those playing soccer and basketball. This research further noted that female players tend to sustain these injuries at a higher rate than their male counterparts.

While the general tendency may be to go to the site of the lower-body injury when looking for the cause and/or to create a treatment plan, one DC says the best approach involves starting much higher in the body.

A ‘top-down’ treatment model
“Recent research has correlated concussion injury during sport and an increased incidence of lower extremity injury,” says Michael Bagnell, DC, DACNB, FABBIR, functional neurologist and chiropractic physician at the Bagnell Brain Center in Pinecrest, Fla.

One study Bagnell is referencing was published in the International Journal of Exercise Science in 2020. This comprehensive review noted that athletes of all levels — high school, collegiate and pro — have a greater risk of a lower-extremity injury for more than a year following a sport-related concussion. In some cases, this risk is as high as 67%.

Based on these findings, the researchers decided to take a
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Last year we told the story of the two young chiropractors who 30 years ago attained their DC degrees, both near the top of the same graduating class and full of enthusiasm to enter chiropractic care. When they returned for their 30-year reunion, both were married with family and had stayed in touch over the years. But while one worked in a multi-doctor practice, the other had founded his own multi-location practice and as CEO was contemplating an early retirement.

THE DIFFERENCE?

How and why did the two DC's paths diverge? Both sought success. Both were near the top of their class in school. Both entered the field with enthusiasm. The difference-maker was the business of chiropractic – learning the economics of the industry. The eventual CEO subscribed to Chiropractic Economics and gained the knowledge to take his practice to the next level.

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Sincerely,

Richard Vach
Editor-in-Chief
closer look at biomechanical function and the possible connection between concussion and lower-extremity issues. They found that athletes with a history of concussion had greater knee valgus and internal rotation when doing a jump-cut. They also noticed changes in the players’ lower-extremity stiffness when landing from a jump. This suggests there is a neuromuscular component that, post-concussion, could place these athletes at a greater risk of sustaining a lower-body issue.

A 2018 cohort study found similar results, except this time the subjects studied were soldiers versus athletes. After analyzing medical data from 23,044 active-duty U.S. Army personnel, researchers reported that the soldiers were 38% more likely to sustain a lower-extremity injury within the two years following a concussion when compared to soldiers who were non-concussed. Within 15 months post-concussion, this risk was greater at 45%.

Studies such as these highlight the importance of looking at an athlete’s history of head injury when presenting with a lower-extremity injury. A thorough diagnosis Making this connection for each individual patient begins with a thorough diagnosis. This often includes the standard evaluations most common in a chiropractic setting, such as looking at the patient’s ranges of motion and joint movements. It also involves considering the stabilization to mobility links between the foot, ankle, knee, hip and spine. But for Bagnell and his team, it doesn’t stop there.

“We also include a brain-based consideration or a neurological model which tests cerebellar function on each side as well as vestibular and cortical neurological relationships to lower extremities,” he says. This is important not only when considering the best treatment protocol, but also as a preventive.

“Consider a vision/brain evaluation from a chiropractic neurologist (functional neurologist) prior to sport season,” suggests Bagnell, “for a deeper understanding of areas for potential improvement to mitigate chances of injury.”

What happens if a suspected connection exists?
Vision training for lower body issues
“Where many in rehabilitation would work with soft tissue, ligament rehabilitation, functional muscle movement improvement and control around the joint, rocker board applications for ankle proprioception, we add in vision training for improving brain map accuracy to these lower-extremity regions,” Bagnell explains.

Bagnell also likes to have athletes perform vision training activities prior to returning to play. This provides “gradual and progressive demands on the lower limb,” he says, adding that, “by working a ‘top-down’ model combined with a more traditional ‘bottom-up’ therapy, we are seeing improved outcomes.”

CHRISTINA DEBUSK is a freelance writer who specializes in content related to natural health and wellness, personal development and small-business marketing. She can be contacted through ChristinaMDeBusk.com.

References can be found online at chiroeco.com.
THE WATER-SOLUBLE CBD BENEFIT

Increased absorption and bioavailability are only some of the benefits of the oil alternative

BY GENEVIEVE NEWTON, DC, PHD

TIME TO READ: 9-11 MIN.

THE TAKEAWAY

The majority of the body is water, so digestion and absorption of water-soluble molecules is easier than for oils, and the small size of emulsified water-soluble CBD particles further aids in absorption.

BUYING CBD IN THE U.S. TODAY CAN BE A DIZZYING EXPERIENCE. The sheer volume of products is overwhelming, many of which claim to have unique and distinctive properties. Among the newer CBD products on the market are those with water-soluble CBD, which claim to offer better absorption and to be more bioavailable to the body. That is, they are supposed to more readily enter into circulation and exert a greater therapeutic effect.

Water-soluble CBD is different from traditional CBD in that it mixes easily with water. CBD, by nature, is not water-soluble — it is “lipophilic” and dissolves in oil. This is because the CBD molecule actually is an oil, and as fats, oils don’t dissolve in water.

CBD oil to water

How does CBD in its original oil, or oil-soluble, form get converted into water-soluble CBD?

“It is a bit like a Trojan horse, meaning we bind or ‘hide’ the micro-sized oil droplets within small bubbles, known as micelles,” says Scott Riefler, chief science officer at SōRSE Technology, a water-soluble CBD manufacturer. “The micelles are constructed of water-loving materials. In this application the micelles are designed to tightly bind and isolate the oils in a manner that they present as water-soluble.”

These are also often referred to as nano-emulsions. This processing makes it possible for CBD in water-soluble products to dissolve in the blood. It is also why they can be mixed into liquids without the separation that would occur if you added oil-soluble CBD.

How CBD is taken and absorbed

When CBD is being consumed orally, it has to go through the same process of digestion and absorption as anything else. In this way, water-soluble CBD could be compared to water-soluble nutrients like vitamin B12 or carbohydrates, while oil-soluble CBD could be compared to fat-soluble nutrients like vitamin E or cholesterol. Since the majority of the body is water, it’s not surprising that the digestion and absorption of water-soluble molecules is easier than for oils.

Water-soluble molecules get absorbed through the wall of the small intestine into the intestinal cells, and then they pass into the hepatic portal vein, which carries them to the liver. In the liver there is metabolism of many molecules, including CBD, before they get out into general circulation. This is called “first-pass metabolism,” and it involves chemical reactions that greatly reduce the amount of the molecule that gets distributed throughout the body.

Small fats also travel to the liver through the hepatic
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portal vein, while larger fat-soluble molecules (like CBD oil) get to the liver via a different route. After larger fats get absorbed, they are incorporated into carrier molecules called chylomicrons that travel through the lymphatic system, which is similar to the circulatory system but contains lymph fluid instead of blood. The lymph then “dumps” into the general circulation, and the chylomicrons travel to the liver, where the fat-soluble molecules also go through first pass metabolism.

Both oil-soluble and water-soluble molecules end up in the liver, but they take slightly different routes.

At this point, you may be asking, “Where do differences in bioavailability come from? Both water- and oil-soluble molecules are absorbed, travel to the liver and are distributed throughout the body.” Many of the differences happen at the level of absorption, with oil-soluble CBD showing wide variation depending on how it is consumed.

When taken on an empty stomach, studies have shown that its bioavailability is only about 6%. If taken with a high-fat meal, however, bioavailability goes up fourfold. This characteristic of oil-soluble CBD is similar to what we see with fat-soluble vitamins, which is why nutritionists and dietitians recommend always taking supplements of vitamins A, D, E and K with meals containing fat.

Increasing bioavailability

The claim of increased bioavailability for water-soluble CBD is made by many companies, most of which do not support their statements with research — but some companies are backing it up with research.

One company has published two studies measuring the bioavailability of their formulations in comparison to traditional CBD. In the first study, 10 healthy adults took a 30-milligram dose of either water- or oil-soluble CBD. The water-soluble CBD was absorbed much faster and was found to be 4.5 times more bioavailable than the oil-soluble CBD.

In the second study, 15 healthy adults consumed CBD in five different formats. The dissolvable CBD powder and liquid concentrate were absorbed significantly better than the two controls, which included an oil-based CBD and a CBD isolate.

What is interesting about this study is that it used a crossover design, in which each subject consumed all five of the products in a randomized order. This type of design helps reduce the variation introduced when each treatment group contains different subjects.

The other company studying pharmacokinetics recently conducted a study comparing 100mg of their dissolvable CBD isolate powder to an equal dose of CBD dispersed in sesame oil. Sesame oil has been shown to increase the absorption of oil-soluble CBD, so this would be considered a highly absorbable oil-soluble CBD control group. The water-soluble CBD was absorbed faster and reached higher peak concentrations than the highly absorbable oil-soluble CBD, showing better bioavailability. Although this study is currently unpublished, the consistency of the findings from the three human studies shows the superior absorption of water-soluble CBD.

In addition to increased bioavailability and absorption, there are also several other reported advantages to water-soluble products. Research showed that the rate of absorption of water-soluble CBD was faster, meaning the user will experience faster-acting effects. The really small size of the emulsified water-soluble CBD particles also means that absorption into the body occurs more readily in locations like the mucous membranes of the mouth, with some suggesting that they may even bypass first-pass metabolism in the liver to an extent.
or heat. When made water-soluble, the CBD has a longer shelf life, although it will still have an expiration date. Finally, many consumers like the convenience and taste of water-soluble CBD. It can be added to any beverage, and most are tasteless and odorless, unlike CBD oil, which (depending on the preparation) may have a strong taste. Oil is also, well, oily, which is unpalatable to some.

### Isolates and spectrums

Water-soluble CBD products are available both as isolates, which contain only CBD, and full- or broad-spectrum preparations that also contain other molecules from the cannabis plant, like other cannabinoids. As with any other CBD product, it’s critical to look for water-soluble CBD that has undergone third-party testing to validate its quality, purity and potency, and that has a certificate of analysis showing its detailed chemical composition.

A more rapid onset with consistent and convenient dosing is especially useful when treating conditions like pain, sleep and anxiety disorders. Water-soluble CBD offers many benefits, and is a viable alternative to traditional CBD products.

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**GENEVIEVE NEWTON,** DC, PhD, has spent the past 19 years as a researcher and educator in the field of nutritional sciences. A series of personal health crises led her to discover the benefits of cannabinoids, and she soon found herself engrossed in studying the endocannabinoid system and therapeutic applications of cannabis/cannabinoids in mental health, pain, sleep and neurological disorders. She has recently taken a position as the scientific director at Fringe, a new medical CBD and education company. Learn more at joinfringe.com.

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KT Recovery+ Wave takes clinically proven electromagnetic therapy from the clinician’s office and brings it to you as an easy-to-use, portable, FDA-cleared device. What was once an expensive, bulky clinical and sports therapy treatment is now lightweight, discreet and wearable — to go wherever you go. This water-resistant device features a flexible loop to make it easy to place during active use, and up to 250 hours of battery life.

kttape.com

CBD OIL TINCTURE

Eventide’s 1-ounce USDA-certified Organic Orange Paradise CBD Oil Tincture 450mg (15mg per serving) offers results quickly and easily. Each drop is formulated without alcohol, using only three high-quality ingredients: organic MCT oil, organic orange essential oil and organic broad-spectrum hemp extract. THC-free, it is suitable for taking at night or during the day. Third-party lab test results are available on the company’s website.*

844-349-6348 • eventidecbd.com

IMMUNE SUPPORT

Monolaurin, also known as glycerol monolaurate, helps support the body’s healthy inflammatory response; it is the medium-chain fatty acid lauric acid bound to glycerin and can act as a lipid-based surfactant that disrupts biofilms. While coconut oil is rich in lauric acid in the triglyceride form, monolaurin showed much more activity when the two were compared in a scientific study.*

800-869-8078 • energiquepro.com

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The NerveSpa Pro is an advanced neuropathy stimulator that utilizes a proprietary hybrid of electrotherapy, including enhanced micro-current, galvanic and TENS specifications. This is coupled with a monophasic waveform to target pain associated with early-onset peripheral neuropathy. The effervescent tablets included enrich the warm foot bath with vital nutrients for a diabetic, such as collagen, vitamin C, aloe and other ingredients to help moisturize the feet.

800-239-7880 • nervespa.com

To search for more products, or to submit a product, go to ChiroEco.com and click on “Products and Services.”

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ONE-STEP DISINFECTANT
Conquer is an EPA-registered disinfectant that comes ready to use — no mixing or diluting required. It is effective on all hard, non-porous surfaces, including clinic tables, counters, chairs, exercise equipment and other high-touch surfaces like door handles, sinks and faucets. This non-abrasive, alcohol- and bleach-free formula kills 37 pathogenic microorganisms, including the virus that causes COVID-19.
800-201-7246 • conquerclinical.com

BRAIN BOOSTER
Bacopa Complex is a brain tonic containing bacopa, schisandra, eleuthero and essential oil of rosemary. These herbs have been traditionally used in herbal preparations to enhance mental clarity; support healthy cognitive function; support normal memory function; support physical endurance during times of mild fatigue or weakness; ease the effects of temporary and occasional stress; and support healthy memory and concentration.*
800-558-8740 • standardprocess.com

CBD TOPICALS
Herb Tech Pharmaceuticals’ topicals combine independent, legally validated CBD extract from Kentucky farms with botanicals from Hawaii. Deep tissue penetration is assured with the company’s patent-pending Phase Change Technology, allowing for targeted spot treatment applications. Each topical contains 1,000 mg of CBD full-spectrum hemp extract. The dose-controlled bottles dispense 20 mg of CBD extract per pump.
978-522-0049 • herbtechpharma.com

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