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Buzzworthy: Exclusive Breakthrough Research from OneGuild Insiders

Advancing Amputation Prevention: Dr. Richard Neville's Role in the ADA Initiative

Dr. Richard Neville from Inova, renowned for his vascular expertise, joined the ADA Amputation Prevention initiative as a key vascular representative. He emphasizes the critical importance of this initiative in preventing amputations among diabetic patients.

Enhancing Patient Care in Office-Based Laboratories: Insights from Dr. Krishna Jain

Dr. Krishna Jain from Apex Health Network and Limb Preservation Centers of America, has recently published an insightful article titled "Running a quality-focused office-based laboratory" in the *Journal of Vascular Surgery: Venous and Lymphatic Disorders*. His research explores the operational dynamics and quality assurance protocols crucial for ensuring patient-centered care in office-based settings. [Read more](#)

In The Know: Taking Stock of Global Diabetes News Driving The Day

Breakthrough in Hemostasis and Wound Healing Research

Brief Overview: A study in *Science Translational Medicine* presents synthetic platelet-like particles (PLPs) developed by a team including Chapman University's Professor Andrew Lyon.

Key Development: PLPs mimic natural platelets, traveling through the bloodstream to aid in clotting and wound healing, offering an alternative to traditional platelet transfusions.

Key Findings:

- Efficacy: In animal models, PLPs performed as well as traditional platelets.
- Safety: PLPs are well tolerated and safely excreted by the body.

Impact: This innovation addresses critical needs in trauma and surgical care, potentially improving patient outcomes and transforming medical practices.

Conclusion: The success of PLPs in preclinical trials highlights their potential for clinical use, with ongoing efforts aimed at bringing this technology to patients. [Read more](#)

UBC-developed oral insulin drops offer relief for diabetes patients

Brief Overview: Researchers at UBC, led by Dr. Shyh-Dar Li, have developed oral insulin drops to provide a pain-free alternative to insulin injections for diabetes patients.

Key Development: The oral drops combine insulin with a unique cell-penetrating peptide (CPP) that enables the insulin to be efficiently absorbed into the bloodstream when placed under the tongue.

Key Findings:

- Efficacy: Pre-clinical tests show that insulin combined with CPP effectively reaches the bloodstream, whereas insulin alone does not.
- Mechanism: The CPP, derived from fish byproducts, facilitates the passage of insulin through cells and into the blood.

Impact: This innovation has the potential to improve the quality of life for diabetes patients by eliminating the need for multiple daily injections and reducing associated risks such as needle pricks and infections.

Conclusion: Dr. Li's lab is working to commercialize this technology, aiming to provide a convenient and effective alternative to insulin injections. [Read more](#)

To Heal Skin, Scientists Invent Living Bioelectronics

Brief Overview: Rutgers–New Brunswick researchers, led by Assistant Professor Simiao Niu, have developed a "living bioelectronic" device combining sensors, bacteria, and hydrogels to treat skin conditions like psoriasis.

Key Development: The device is a patch about 1 inch in diameter, containing electronic chips, living bacterial cells, and a gel made from starch and gelatin. It monitors and treats skin inflammation by reducing irritation and promoting healing.

Key Findings:

- Efficacy: Tests in mice showed that the patch continuously monitors and improves psoriasis-like symptoms.
- Mechanism: The bacteria in the gel secrete compounds to reduce inflammation, while sensors track healing indicators such as skin impedance, temperature, and humidity.

Impact: This innovation represents a new platform for treating various medical needs, including wounds and potentially skin cancers. It offers a significant advancement over conventional bioelectronics by incorporating living cells.

Conclusion: The device, currently in the preclinical stage, aims for human trials and eventual FDA approval. [Read more](#)

Century-old Vaccine Protects Type 1 Diabetics from Infectious Diseases

Brief Overview: Researchers at Massachusetts General Hospital (MGH) conducted Phase II and Phase III trials to test the Bacillus Calmette-Guérin (BCG) vaccine in individuals with type 1 diabetes during the COVID-19 pandemic. The trials aimed to assess whether the BCG vaccine could protect this vulnerable population from infectious diseases, including COVID-19.

Key Development: The BCG vaccine, originally developed for tuberculosis, was administered in multiple doses (five or six) to participants, distinguishing these trials from others that typically used a single dose or booster.

Key Findings:

- **Efficacy Against COVID-19:** The Phase II trial showed a 92% efficacy during the early, more lethal phase of the pandemic. The Phase III trial showed a 54.3% efficacy over the full 34 months of the pandemic.
- **Protection from Other Infections:** BCG-treated participants had lower rates of viral, bacterial, and fungal infections.
- **Comparison with COVID-19 Vaccines:** The BCG vaccine provided better protection for type 1 diabetics than Pfizer, Moderna, and Johnson & Johnson COVID-19 vaccines.

Impact: The BCG vaccine could offer long-lasting immunity for type 1 diabetics, who are highly susceptible to infectious diseases. This contrasts with the shorter duration of protection provided by COVID-19 vaccines.

Conclusion: The research team aims to work with the FDA to make the BCG vaccine available to this at-risk population, noting its potential benefits in protecting type 1 diabetics from a range of infectious diseases. [Read more](#)

Wound-homing molecule accelerates tissue repair

Brief Overview: A study led by Professor Tero Järvinen at Tampere University discovered a peptide that targets tissue damage and accelerates healing by activating natural regeneration mechanisms.

Key Development: The CAR peptide, administered intravenously, homes in on damaged tissue, binds to the syndecan-4 receptor, and triggers cell migration crucial for wound healing.

Key Findings:

- **Efficacy:** In mouse models, CAR peptide treatment accelerated wound healing and reduced scar size.
- **Mechanism:** The peptide activates a pathway involving syndecan-4 and Arf6 GTPase, promoting tissue regeneration.

Impact: This discovery offers new treatment possibilities for a variety of injuries, including skin wounds, muscle ruptures, and bone fractures, potentially transforming traumatology, surgery, and sports medicine.

Conclusion: The CAR peptide's ability to enhance tissue repair and reduce scarring highlights its potential for broad clinical applications, with ongoing research aiming to translate these findings into therapeutic use. [Read more](#)

Healing eyes with contact lenses

Brief Overview: A multidisciplinary team from the University of Waterloo has developed a new contact lens material that acts as a bandage for corneal wounds while releasing drugs in a controlled manner. This innovation aims to enhance the healing process for eye abrasions.

Key Development: The contact lens material is made from gelatin methacrylate, a collagen derivative, which has been transformed into a biomaterial ten times stronger than natural collagen. This material is designed to degrade in response to enzymes involved in wound healing, thereby releasing drugs proportionally to the severity of the wound.

Key Findings:

- **Controlled Drug Release:** The material degrades in the presence of matrix metalloproteinase-9 (MMP-9), an enzyme naturally found in the eye. This allows the drug to be released in a manner proportional to the enzyme's concentration, ensuring that more drug is delivered to more severe wounds.
- **Effective Healing:** Using bovine lactoferrin as a model drug, human cell culture studies showed complete wound healing within five days.
- **Temperature Activation:** The material is activated at eye temperature, providing an inherent storage mechanism until it is applied.

Impact: This innovative contact lens material could significantly improve the treatment of corneal abrasions by ensuring sustained and targeted drug delivery. It has the potential to enhance the healing process, reduce the need for frequent eye drops, and improve patient compliance and outcomes.

Conclusion: The research team is now focused on fine-tuning the material and exploring the entrapment of different drugs. The potential applications extend beyond eye care, possibly benefiting the treatment of other wounds, such as large skin ulcers. [Read more](#)

New Consensus on Second-Degree Burn Treatment (2024 Edition)

A new consensus developed by the Chinese Burn Association provides 58 recommendations for the treatment of second-degree burn wounds, covering prehospital first aid, nonsurgical and surgical treatments, and infection management.

[Read more](#)

Behind The Scenes: Uncovering Cutting-Edge Diabetes Research Beyond Scientific Journals

Single-cell RNA sequencing and transcriptomic analysis reveal the critical signatures involved in nonhealing diabetic foot ulcers

In a study from China, researchers conducted single-cell RNA sequencing and transcriptomic analysis to uncover critical signatures involved in nonhealing diabetic foot ulcers (DFUs). They analyzed multiple datasets to identify distinct cell clusters and highlighted the basalKera cell type as pivotal in disease progression. Using a prediction model incorporating five key genes (TXN, PHLDA2, RPLP1, MT1G, and SDC4), they demonstrated high accuracy in predicting disease outcomes. Immunoinfiltration analysis and pathway investigations revealed significant roles for CD8+ T cells, T helper cells, and pathways such as hypoxia-inducible factor and interleukin-17 signalling in DFU pathogenesis. This comprehensive approach identifies potential new targets for DFU prevention and treatment strategies. [Read more](#)

Associations of fish oil with cardiovascular disease events: results from the Taiwan longitudinal study in aging

In a study from Taiwan, researchers analyzed data from the Taiwan Longitudinal Study in Aging to investigate the associations of fish oil supplementation with cardiovascular disease events. They followed 3,652 participants over 12 years, excluding those with pre-existing ischemic heart disease or stroke. Results revealed a lower cumulative incidence rate of stroke among participants taking fish oil supplements compared to non-users (5.7% vs. 7.7%, $P < 0.05$).

After adjusting for potential confounders, fish oil supplementation showed a significantly reduced risk of stroke among diabetic patients (adjusted HR = 0.123; 95% CI 0.016–0.930) but not in non-diabetic individuals. This suggests that fish oil may have specific benefits for diabetic patients in stroke prevention. [Read more](#)

Antibacterial methacrylamide chitosan modified viscose/poly(ϵ -caprolactone) hydrogel membranes for wound healing

In a study from China, researchers developed antibacterial hydrogel membranes by modifying viscose/poly(ϵ -caprolactone) (PCL) with ChMA (antibacterial methacrylamide) and tannic acid (TA) to enhance wound healing processes. They investigated the morphology, chemical properties, mechanical strength, antibacterial efficacy, and biocompatibility of the modified membranes. Results showed that the ChMA/TA-modified membranes exhibited significant improvements in swelling capacity, mechanical strength (3.2 ± 0.4 MPa), and antibacterial activity (95% against *S. aureus*). Additionally, these membranes demonstrated high cytocompatibility and accelerated wound healing in vivo. The study suggests that ChMA/TA-modified viscose hydrogel membranes hold promise as effective wound dressings, leveraging their accessibility and simplicity of preparation. [Read more](#)

Engrailed-1 (EN-1) inactivation leads to scarless skin wound healing through extracellular matrix (ECM) remodeling

In a study from China and the United States, researchers investigated the role of Engrailed-1 (EN-1) in skin wound healing and scar formation. They found that EN-1 was upregulated in mouse wound dermis and TGF- β 1-stimulated mouse dermal fibroblasts. By treating dermal fibroblasts with Verteporfin or using an adenoviral vector expressing siRNAs against EN-1 (Ad-simEn1), they observed downregulation of scar formation-related genes, reduced F-actin cytoskeleton, and a shift in extracellular matrix (ECM) structure from dense to sparse with decreased fibronectin (FN-1) and fibrinogen (FIB) and increased hyaluronic acid (HA) content. In a rabbit model, silencing EN-1 expression suppressed keloid formation and facilitated scarless healing by promoting ECM remodeling. These findings suggest that targeting EN-1 could potentially mitigate hypertrophic scarring and enhance wound healing outcomes. [Read more](#)

Applications in Distal Lower Limb Wound Reconstruction: A Single-Center Retrospective Study

In a retrospective study from China, researchers evaluated the long-term efficacy and surgical outcomes of sural neurovascular flap applications in reconstructing distal lower limb wounds. The study included 47 participants with complex tibial and soft tissue defects caused by severe trauma. Results showed that over 95% of the flaps survived, with minor complications such as superficial necrosis observed. Less than 5% of cases required reoperations due to necrosis. Patient satisfaction was high, with more than half reporting excellent cosmetic outcomes and over 40% reporting good cosmetic results. The findings underscore the efficacy of sural neurovascular flaps in achieving successful wound repair and highlight the importance of careful patient selection and surgical planning to optimize outcomes. [Read more](#)

Seas of Renewal: Turning Sea Urchin Waste into Polyhydroxynaphthoquinone-Collagen Biomaterials for Skin Regeneration

In a study from Italy, researchers converted sea urchin waste into collagen-based scaffolds enriched with polyhydroxynaphthoquinones (PHNQs) for skin regeneration applications. The research focused on enhancing scaffold stability and integrity by optimizing the incorporation of PHNQ antioxidants. Results showed that the composite scaffolds exhibited superior mechanical stability and slower degradation rates compared to controls, attributed to strong collagen-PHNQ interactions. Molecular dynamics simulations confirmed the formation of covalent bonds between collagen and PHNQs, validating their structural integrity. Moreover, the antioxidant properties of PHNQs were preserved in the scaffolds, suggesting their potential for therapeutic benefits in chronic wound healing. This study highlights the promising role of sea urchin-derived biomaterials in advancing wound care therapies. [Read more](#)

Effectiveness of a web-based foot-ankle exercises program for treating modifiable risk factors for ulcers in people with diabetic neuropathy: a randomized controlled trial

In a randomized controlled trial from Brazil, researchers investigated the effectiveness of a web-based foot-ankle exercises program for individuals with diabetic neuropathy (DPN). Sixty-two participants were randomly assigned to either the intervention group (IG), receiving usual care plus a 12-week web-based foot-ankle exercises program (SOPeD software), or the control group (CG), receiving usual care alone. While DPN symptoms and severity remained unchanged, the IG showed improvements in functional reach at 12 weeks and in foot function, foot pain reduction, and greater plantarflexion during push-off at 24 weeks compared to the CG. Changes in plantar pressure and gait biomechanics were also observed, suggesting the program's feasibility and safety with minimal adverse events. These findings underscore the potential of web-based exercise programs in enhancing functional outcomes for individuals with diabetic neuropathy. [Read more](#)

SolasCure is one of 16 healthcare companies selected for the Global Incubator Programme in Houston

[Read about it](#)

Advancing Healthcare: Clinical Trials, FDA Drug Approvals, And FDA Device Approvals

CLINICAL TRIALS

[Clinical Study in Adult Patients With Purulent-inflammatory Processes of the Skin and Soft Tissues. Phase I-II of the Wound Process \(OLENKRON-01\)](#)
Belarus | Active | Not yet recruiting

[A Study to Evaluate Pregabalin in Painful Diabetic Peripheral Neuropathy](#)
China | Active | Not yet recruiting

[Sotagliflozin to Slow Kidney Function Decline in Persons With Type 1 Diabetes and Diabetic Kidney Disease \(SUGARNSALT\)](#)
USA | Active | Not yet recruiting

[Canagliflozin Targeting Vascular Inflammation \(CANTORSING\)](#)
Canada | Active | Not yet recruiting

FDA DEVICE APPROVALS AND 510(k) CLEARANCES

--- ALGS2 Ag Alginate Wound Dressing Rx; ALGS2 Ag Alginate Wound Dressing OTC; ALGS2S Re-enforced Ag Alginate Wound Dressing Rx; ALGS2S Re-enforced Ag Alginate Wound Dressing OTC by Foshan United Medical Technologies, Ltd.

FDA approved May 2024

Indication for use: Rx Only: (Pad and Ribbon Configurations) Under the supervision of a healthcare professional, ALGS2 Ag Alginate Wound Dressing may be used for the management of acute and chronic, partial and full thickness wounds including pressure ulcers, leg ulcers, diabetic foot ulcers, surgical wounds, traumatic wounds, partial thickness burns. For Over-the-Counter use: (Pad Configuration) ALGS2 Ag Alginate Wound Dressing may be used for • Minor Abrasions • Minor Lacerations • Minor cuts • Minor scalds and burns.

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