

CellRenew Regenerative Medicine

COMPREHENSIVE PATIENT EDUCATION GUIDE

Your Complete Guide to Regenerative Medicine

An in-depth educational resource covering the science of regenerative medicine, biologic therapies, and personalised treatment programmes — written to help you make confident, informed decisions about your health.

PART 1 — THE SCIENCE OF REGENERATIVE
MEDICINE

PART 2 — AESTHETIC REGENERATION

PART 3 — PHYSICAL RECOVERY &
PERFORMANCE

PART 4 — LONGEVITY & HEALTH
OPTIMISATION

PART 5 — MEDICAL CONDITIONS
PROGRAMMES

PART 6 — GENOMIC & DNA TESTING

Table of Contents

Navigate your guide to regenerative medicine

PART ONE — THE SCIENCE

- What Is Regenerative Medicine?
- Mesenchymal Stem Cells (MSCs)
- Exosome Therapy
- Platelet-Rich Plasma (PRP) & Plasma Resylate
- Peptide Therapy

PART TWO — AESTHETIC REGENERATION

- Facial Rejuvenation
- Hair Restoration

PART THREE — PHYSICAL RECOVERY

- Osteoarthritis
- Tendinopathy & Ligament Injuries
- Sports Performance Optimisation

PART FOUR — LONGEVITY

- The Science of Biological Ageing
- Longevity Programme Areas

PART FIVE — MEDICAL CONDITIONS

- Type 2 Diabetes & Insulin Resistance
- Medical Weight Loss
- Women's Hormonal & Sexual Health
- Burnout & Stress Recovery
- Pain Management

PART SIX — DNA TESTING

- DNA Core • DNA Sport • DNA Skin
- DNA Diet • DNA Gut • DNA Hormone
- DNA Pain • TruAge Epigenetic Testing

FAQ & REFERENCES

- Frequently Asked Questions
- Clinical Evidence & References

How to Use This Guide

This guide is structured to take you from foundational science through to specific treatment applications. You may read it from beginning to end for a comprehensive understanding, or navigate directly to the sections most relevant to your health goals. Each section is designed to be self-contained, so you can read in any order that suits you.

PART ONE

The Science of Regenerative Medicine

*Understanding the biological foundations of regenerative medicine —
the therapies, the mechanisms, and the science behind CellRenew's
approach to healing.*

What Is Regenerative Medicine?

Regenerative Medicine

Regenerative medicine is a rapidly evolving field of medical science that aims to harness the body's own healing mechanisms — and to amplify, direct, and accelerate them — in order to repair damaged tissues, restore normal function, and reverse the biological processes of disease and ageing. Unlike conventional medicine, which primarily manages symptoms and slows disease progression, regenerative medicine seeks to address the underlying biological causes of dysfunction at the cellular and molecular level.

At its core, regenerative medicine is built on a profound insight: the human body has an extraordinary innate capacity for self-repair. Every day, billions of cells are replaced, damaged tissues are repaired, and the immune system neutralises threats. Regenerative medicine works with this natural biology — providing the cells, signals, and biological building blocks that the body needs to repair itself more effectively than it could alone.

"The goal of regenerative medicine is not to treat disease — it is to restore the biological conditions in which health is the natural outcome."

The Shift from Reactive to Regenerative Medicine

Conventional medicine is largely reactive — it responds to disease after it has developed, managing symptoms and slowing progression. Regenerative medicine represents a fundamental paradigm shift: from reactive disease management to proactive biological restoration. This shift is made possible by advances in cell biology, molecular medicine, genomics, and our understanding of the ageing process that have transformed our ability to intervene at the root causes of disease.

CellRenew's approach integrates the most evidence-supported regenerative therapies — mesenchymal stem cells, exosomes, platelet-rich plasma, and peptide therapy — with precision diagnostics, genomic testing, and personalised lifestyle medicine to create comprehensive programmes that address each patient's unique biology.

The Hallmarks of Ageing — What Regenerative Medicine Addresses

In 2013, a landmark paper in the journal *Cell* identified nine "Hallmarks of Ageing" — the core biological processes that drive the deterioration of health with age. These include genomic instability, telomere attrition, epigenetic alterations, loss of proteostasis, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, stem cell exhaustion, and altered intercellular communication. Regenerative medicine — and particularly MSC and exosome therapy — has been shown to address multiple hallmarks simultaneously, making it one of the most comprehensive biological anti-ageing approaches available.

Mesenchymal Stem Cells (MSCs)

Mesenchymal Stem Cells

Mesenchymal stem cells (MSCs) are multipotent stromal cells — a type of adult stem cell found in multiple tissues throughout the body, including bone marrow, adipose tissue, and umbilical cord tissue. They are the cornerstone of regenerative medicine, capable of differentiating into multiple cell types (including bone, cartilage, muscle, and fat cells) and, more importantly, of orchestrating the body's healing response through powerful paracrine signalling mechanisms.

At CellRenew, MSCs are sourced from Wharton's jelly — the gelatinous substance within the umbilical cord — which yields a particularly potent and ethically uncontroversial source of MSCs. Umbilical cord-derived MSCs are young, highly active, and have not been exposed to the accumulated DNA damage and reduced potency that affects MSCs from older donors. They are rigorously screened, tested, and processed to ensure safety and therapeutic potency.

How MSCs Work

The therapeutic effects of MSCs are mediated primarily through paracrine signalling — the secretion of a complex array of growth factors, cytokines, and extracellular vesicles (including exosomes) that modulate the behaviour of surrounding cells and tissues. Key mechanisms include potent immunomodulation (MSCs can suppress excessive inflammation while supporting appropriate immune responses), trophic support (secreting growth factors that promote cell survival, proliferation, and differentiation), angiogenesis (stimulating the formation of new blood vessels to support tissue repair), and anti-apoptotic effects (protecting cells from programmed cell death).

MSCs also have a remarkable ability to home to sites of injury and inflammation — migrating through the bloodstream to areas of tissue damage and concentrating their regenerative effects where they are most needed. This homing capacity makes intravenous MSC infusion a powerful systemic therapy for conditions involving widespread inflammation or multiple organ systems.

Safety and Regulatory Status

MSC therapy has an extensive safety record in clinical research, with thousands of patients treated in clinical trials globally, and the most common adverse effects are mild and transient. MSC therapy is not approved by SAHPRA for routine clinical use in South Africa; biologic products are sourced from SAHPRA-approved manufacturers and suppliers in accordance with applicable South African regulatory requirements. All treatments at CellRenew are offered within the appropriate legal and ethical framework, with fully informed, voluntary written consent obtained following a detailed consultation with the treating clinician.

MSC Therapy for Knee Osteoarthritis

INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, 2023 [1]

A systematic review of clinical trials of MSC therapy for knee osteoarthritis found consistent evidence of significant pain reduction, improved functional outcomes, and cartilage regeneration across multiple studies. The authors concluded that MSC therapy represents a promising disease-modifying approach to osteoarthritis, with a favourable safety profile.

MSCs and the Hallmarks of Ageing

STEM CELL RESEARCH & THERAPY, 2025 [2]

A comprehensive review found that MSC therapy addresses multiple hallmarks of ageing simultaneously — including cellular senescence, stem cell exhaustion, altered intercellular communication, and mitochondrial dysfunction — making it one of the most broad-spectrum biological anti-ageing interventions available.

Exosome Therapy

Exosome Therapy

Exosomes are nano-sized extracellular vesicles — tiny membrane-enclosed particles, approximately 30 to 150 nanometres in diameter — that are secreted by cells as a means of intercellular communication. They carry a cargo of proteins, lipids, messenger RNA, microRNA, and other bioactive molecules that can be transferred between cells, modulating the behaviour of recipient cells in profound ways. In the context of regenerative medicine, exosomes derived from MSCs are of particular interest — they carry much of the regenerative signalling capacity of the parent cells, without the complexity and regulatory challenges associated with living cell therapies.

Exosome therapy represents the next generation of regenerative medicine — delivering the regenerative signals of MSCs in a highly concentrated, stable, and precisely characterised form. Because exosomes are cell-free, they can be more easily standardised, stored, and administered than living cell therapies. They also have a remarkable ability to cross biological barriers — including the blood-brain barrier — making them particularly valuable for neurological applications.

Mechanisms of Action

MSC-derived exosomes exert their effects through multiple mechanisms. They deliver microRNA molecules that regulate gene expression in recipient cells — modulating inflammatory pathways, promoting cell survival, and stimulating regenerative processes. They transfer growth factors and signalling proteins that directly stimulate tissue repair. They modulate immune cell function, reducing excessive inflammation while supporting appropriate healing responses. And they can reprogram the epigenetic state of recipient cells — influencing which genes are expressed and how — with potentially profound effects on cellular ageing and function.

Applications at CellRenew

At CellRenew, exosome therapy is used both as a standalone treatment and in combination with MSC therapy for enhanced regenerative effect. Intravenous exosome infusions provide systemic regenerative and anti-inflammatory effects. Localised exosome injections deliver concentrated regenerative signals to specific tissues — including joints, tendons, scalp, and skin. And topical exosome preparations are used in aesthetic applications to support skin rejuvenation and wound healing.

Safety and Regulatory Status

Exosome therapy has demonstrated a highly favourable safety profile in clinical trials; because exosomes are cell-free, they carry a lower risk of immune complications than whole-cell therapies, and the most common adverse effects are mild and transient. Exosome therapy is not approved by SAHPRA for routine clinical use in South Africa; biologic products are sourced from SAHPRA-approved manufacturers and suppliers in accordance with applicable South African regulatory requirements. All treatments at CellRenew are offered within the appropriate legal and ethical framework, with fully informed, voluntary written consent obtained following a detailed consultation with the treating clinician.

Exosomes for Anti-Ageing Skin Treatments

PMC / NIH SYSTEMATIC REVIEW, 2025 [4]

A systematic review of stem cell-derived exosome therapies for skin rejuvenation found consistent evidence of improved skin texture, reduced wrinkle depth, enhanced collagen synthesis, and improved skin hydration across multiple clinical studies. The authors concluded that exosome therapy represents a significant advance in non-invasive aesthetic medicine.

Platelet-Rich Plasma (PRP) & Plasma Resylate

PRP Therapy

Platelet-rich plasma (PRP) is an autologous biologic therapy — derived from your own blood — that harnesses the regenerative power of platelets and the growth factors they contain. Platelets are small blood cells best known for their role in clotting, but they are also powerful orchestrators of tissue repair, secreting a rich array of growth factors that stimulate cell proliferation, tissue regeneration, and angiogenesis (new blood vessel formation).

PRP is prepared by drawing a small volume of the patient's blood, centrifuging it to concentrate the platelets, and then administering the resulting platelet-rich fraction to the treatment site. Because PRP is derived from the patient's own blood, it carries essentially no risk of immune reaction or disease transmission — making it one of the safest biologic therapies available.

Growth Factors in PRP

The therapeutic effects of PRP are mediated by the growth factors released from activated platelets. These include platelet-derived growth factor (PDGF), transforming growth factor-beta (TGF- β), vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), fibroblast growth factor (FGF), and insulin-like growth factor (IGF-1). Together, these growth factors stimulate fibroblast proliferation and collagen synthesis, promote angiogenesis, support stem cell recruitment and activation, and modulate the inflammatory environment to favour healing over chronic inflammation.

Plasma Resylate

Plasma Resylate is an advanced next-generation platelet-derived therapy that CellRenew is now offering as part of its regenerative medicine portfolio. Unlike conventional PRP — which is derived from the patient's own blood — Plasma Resylate is an **allogeneic** therapy, meaning it is sourced from carefully screened and rigorously tested donor plasma. This allogeneic origin allows for a highly standardised, quality-controlled product with a consistent and potent growth factor profile — eliminating the variability inherent in autologous preparations and ensuring every patient receives a therapeutically optimised dose.

Plasma Resylate undergoes a specialised processing protocol that produces a highly concentrated, bioactive plasma fraction with an enhanced growth factor profile and superior regenerative potency. All donor material is subject to comprehensive infectious disease screening and quality assurance testing in accordance with applicable regulatory standards. Plasma Resylate is indicated for aesthetic applications including facial rejuvenation and skin quality improvement, hair restoration, musculoskeletal conditions including osteoarthritis and tendinopathy, and as a complement to MSC and exosome therapies in comprehensive regenerative programmes.

Applications at CellRenew

PRP and Plasma Resylate are among the most versatile tools in the regenerative medicine toolkit. At CellRenew, these therapies are used across multiple treatment areas — including musculoskeletal applications (joint injections for osteoarthritis, tendon injections for tendinopathy), aesthetic applications (facial rejuvenation, hair restoration, the O-Shot for female sexual health), and wound healing. Both are frequently combined with MSC and exosome therapies for synergistic regenerative effect.

Safety and Regulatory Status

Autologous PRP is considered an established, routine medical procedure by SAHPRA, carrying essentially no risk of immune reaction as it is derived from the patient's own blood. Plasma Resylate is an allogeneic, donor-derived therapy; all donor material is subject to comprehensive infectious disease screening and quality assurance testing, and the product is sourced from SAHPRA-approved suppliers in accordance with applicable South African regulatory requirements. All treatments at CellRenew are offered within the appropriate legal and ethical framework, with fully informed, voluntary written consent obtained following a detailed consultation with the treating clinician.

PRP for Hair Loss: Meta-Analysis

INTERNATIONAL JOURNAL OF DERMATOLOGY, 2022 [5]

A meta-analysis of 19 randomised controlled trials found that PRP therapy produced statistically significant increases in hair density, hair thickness, and the anagen (growth) to telogen (resting) ratio in patients with androgenetic alopecia. The authors concluded that PRP is an effective and safe treatment for hair loss.

Peptide Therapy

Peptide Therapy

Peptides are short chains of amino acids — the building blocks of proteins — that act as biological signalling molecules, regulating a vast array of physiological processes throughout the body. The human body naturally produces thousands of peptides, each with specific regulatory functions — from controlling growth hormone release and regulating immune function, to modulating appetite, sleep, tissue repair, and cognitive performance.

Peptide therapy involves the administration of specific peptides — either naturally occurring or synthetically produced analogues — to achieve targeted physiological effects. Because peptides are naturally occurring molecules that mimic or amplify the body's own signalling systems, they generally have excellent safety profiles and work in harmony with the body's biology rather than overriding it.

Key Peptides Used at CellRenew

BPC-157 (Body Protection Compound 157) is a synthetic peptide derived from a protein found in gastric juice. It has demonstrated remarkable tissue-healing properties across multiple tissue types — including tendons, ligaments, muscles, bone, gut lining, and neural tissue. BPC-157 promotes angiogenesis, reduces inflammation, and accelerates the healing of both acute and chronic injuries.

TB-500 (Thymosin Beta-4) is a naturally occurring peptide that plays a key role in tissue repair and regeneration. It promotes cell migration to sites of injury, stimulates angiogenesis, reduces inflammation, and supports the healing of tendons, ligaments, and muscle tissue. TB-500 is particularly valued in sports medicine for its ability to accelerate recovery from musculoskeletal injuries.

Growth Hormone Secretagogues (GHS) — including CJC-1295, Ipamorelin, and Sermorelin — stimulate the pituitary gland to produce and release growth hormone in a natural, pulsatile pattern. Growth hormone is a master regulator of metabolism, body composition, tissue repair, immune function, and the pace of biological ageing. GHS peptides support lean muscle mass, fat metabolism, sleep quality, energy, and recovery — without the risks associated with exogenous growth hormone administration.

GLP-1 Receptor Agonist Peptides mimic the action of glucagon-like peptide-1 — a naturally occurring gut hormone that regulates appetite, glucose metabolism, and gastric emptying. These peptides are central to CellRenew's medical weight loss and metabolic health programmes, producing substantial reductions in appetite and meaningful weight loss.

PT-141 (Bremelanotide) is a melanocortin receptor agonist peptide that acts on the central nervous system to enhance sexual desire and arousal in both men and women. Unlike conventional sexual health medications that work through vascular mechanisms, PT-141 works through neurological pathways — making it effective for both physical and psychological components of sexual dysfunction.

Safety and Regulatory Status

Peptide therapies at CellRenew are prescribed by a qualified medical practitioner and have a well-characterised safety profile in the clinical literature. All peptides are sourced on individual patient prescriptions from CPSA-registered compounding pharmacies, ensuring every preparation meets the quality, purity, and sterility standards required by South African regulatory authorities. All treatments are offered within the appropriate legal and ethical framework, with fully informed, voluntary written consent obtained following a detailed consultation with the treating clinician.

Peptides in Gerontology and Longevity

AGEING RESEARCH REVIEWS, 2023

A comprehensive review of peptide therapies in gerontology found growing evidence that targeted peptide protocols — particularly growth hormone secretagogues and cytoprotective peptides — can modulate multiple hallmarks of ageing, supporting tissue repair, metabolic function, immune regulation, and cognitive performance in ageing individuals.

PART TWO

Aesthetic Regeneration

Harnessing the body's own regenerative biology to restore youthful skin, reverse hair loss, and rejuvenate your appearance — from the inside out.

Facial Rejuvenation

Facial Rejuvenation

The ageing face reflects a complex interplay of biological processes — declining collagen and elastin production, reduced skin cell turnover, loss of subcutaneous volume, changes in skin hydration and barrier function, and the cumulative effects of UV exposure, oxidative stress, and chronic low-grade inflammation. Conventional aesthetic medicine addresses these changes primarily through mechanical or chemical means — fillers, toxins, lasers, and chemical peels — that can produce significant cosmetic improvements but do not address the underlying biological processes driving skin ageing.

Regenerative aesthetic medicine takes a fundamentally different approach — using biologic therapies to stimulate the skin's own regenerative capacity, restoring the biological conditions of younger skin rather than simply masking the signs of ageing. The results are characterised by a natural, healthy appearance that improves progressively over months as the biological processes of skin regeneration unfold.

Exosome Facial Rejuvenation

MSC-derived exosomes represent the most advanced regenerative approach to facial rejuvenation currently available. When applied to the skin — either topically following microneedling or via intradermal injection — exosomes deliver a concentrated payload of growth factors, microRNA, and signalling molecules that stimulate fibroblast activity, collagen and elastin synthesis, skin cell proliferation, and the reduction of inflammatory processes that accelerate skin ageing.

Clinical studies have demonstrated that exosome facial treatments produce significant improvements in skin texture, tone, and luminosity; reduction in fine lines and wrinkles; improved skin hydration and barrier function; and reduction in hyperpigmentation and uneven skin tone. The effects develop progressively over 4 to 8 weeks as the biological processes of skin regeneration unfold, and continue to improve for several months following treatment.

PRP Facial Rejuvenation

PRP facial treatments — often referred to as the "vampire facial" — deliver a concentrated burst of autologous growth factors to the skin, stimulating collagen synthesis, improving skin texture and tone, and supporting the regeneration of healthy skin tissue. PRP is particularly effective for improving skin texture and reducing the appearance of fine lines, acne scarring, and enlarged pores. At CellRenew, PRP facial treatments are frequently combined with exosome therapy for enhanced regenerative effect.

Combination Protocols

CellRenew's facial rejuvenation protocols are designed to address all dimensions of facial ageing simultaneously — combining exosome and PRP therapies with targeted peptide protocols that support collagen synthesis and skin health from within, and DNA Skin testing that identifies the specific genetic factors influencing your skin's ageing process and guides the personalisation of your treatment programme.

Exosome Efficacy in Skin Rejuvenation

CUREUS, 2026 [21]

A systematic review evaluating the clinical efficacy of exosome-based therapies for skin rejuvenation found significant improvements in skin texture, photoaging, and acne scarring. The review concluded that exosomes provide robust regenerative benefits with an excellent safety profile in aesthetic applications.

PRP in Aesthetic Medicine: Clinical Evidence

JOURNAL OF CUTANEOUS AND AESTHETIC SURGERY, 2019 [7]

A comprehensive review of PRP in aesthetic medicine found consistent evidence of improved skin texture, increased collagen density, and enhanced skin hydration following PRP facial treatments. The authors noted that PRP's autologous nature makes it one of the safest aesthetic interventions available, with a minimal risk of adverse reactions.

Hair Restoration

Hair Restoration

Hair loss affects an estimated 50% of men and 25% of women by the age of 50, with profound psychological and social consequences. The most common cause – androgenetic alopecia (male and female pattern baldness) – is driven by the effects of dihydrotestosterone (DHT) on genetically susceptible hair follicles, causing progressive miniaturisation of the follicle and eventual cessation of hair production. Other causes of hair loss include alopecia areata (an autoimmune condition), telogen effluvium (stress-related hair shedding), and scarring alopecias.

Conventional treatments for hair loss – including minoxidil, finasteride, and hair transplant surgery – can be effective but have significant limitations. Minoxidil and finasteride require lifelong use to maintain results and have side effects that limit their tolerability for many patients. Hair transplant surgery is invasive, expensive, and limited by the availability of donor hair. Regenerative medicine offers a complementary approach that addresses the underlying biology of hair follicle dysfunction – stimulating dormant follicles, improving the follicular microenvironment, and supporting the natural hair growth cycle.

PRP for Hair Restoration

PRP scalp injections deliver a concentrated burst of growth factors directly to the hair follicle microenvironment, stimulating follicular stem cells, prolonging the anagen (growth) phase of the hair cycle, improving blood supply to the follicle, and reducing the DHT-mediated inflammatory processes that drive follicular miniaturisation. Multiple clinical studies and meta-analyses have demonstrated significant improvements in hair density, hair thickness, and hair growth rate following PRP treatment.

Exosome Hair Restoration

MSC-derived exosomes represent an emerging and highly promising approach to hair restoration. Exosomes deliver microRNA and growth factors that modulate the Wnt/ β -catenin signalling pathway – a key regulator of hair follicle cycling – and stimulate the proliferation and differentiation of follicular stem cells. Early clinical evidence suggests that exosome scalp treatments may produce superior results to PRP alone, particularly for patients with more advanced hair loss.

Exosome Treatment in Hair Restoration

JOURNAL OF COSMETIC DERMATOLOGY, 2023 [22]

A systematic review assessing exosome treatments for hair restoration highlighted their ability to stimulate hair follicle cycling and promote hair density. The review found that exosome therapy offers a promising, safe alternative for androgenetic alopecia, particularly for patients seeking advanced regenerative options.

PRP for Androgenetic Alopecia: Meta-Analysis

INTERNATIONAL JOURNAL OF DERMATOLOGY, 2022 [5]

A meta-analysis of 19 randomised controlled trials found that PRP therapy produced statistically significant increases in hair density, hair thickness, and the anagen-to-telogen ratio in patients with androgenetic alopecia. The authors concluded that PRP is an effective and safe treatment for hair loss, with a favourable safety profile and high patient satisfaction.

PART THREE

Physical Recovery & Performance

Regenerative therapies for musculoskeletal health — repairing joints, tendons, and ligaments, and optimising athletic performance through biological restoration.

Osteoarthritis

Joint Therapy

Osteoarthritis (OA) is the most common joint disease worldwide, affecting an estimated 500 million people globally. It is characterised by the progressive degradation of articular cartilage — the smooth, protective tissue that covers the ends of bones within joints — accompanied by subchondral bone changes, synovial inflammation, and the formation of osteophytes (bone spurs). The result is pain, stiffness, reduced range of motion, and progressive loss of joint function that significantly impairs quality of life.

Conventional management of OA is largely symptomatic — analgesics, anti-inflammatory medications, physiotherapy, and ultimately joint replacement surgery. None of these approaches address the underlying biological processes driving cartilage degradation, and most carry significant risks and limitations. Regenerative medicine offers a fundamentally different approach — using biologic therapies to reduce joint inflammation, stimulate cartilage repair, and restore the biological environment of a healthy joint.

MSC Therapy for Osteoarthritis

MSCs have demonstrated remarkable potential for the treatment of osteoarthritis in both preclinical and clinical studies. When injected into an arthritic joint, MSCs exert powerful anti-inflammatory effects — suppressing the pro-inflammatory cytokines that drive cartilage degradation — and stimulate the regeneration of cartilage tissue through the secretion of growth factors and the differentiation of MSCs into chondrocytes (cartilage cells). Clinical studies have demonstrated significant pain reduction, improved joint function, and evidence of cartilage regeneration following intra-articular MSC injection.

PRP for Osteoarthritis

PRP intra-articular injections deliver a concentrated burst of autologous growth factors to the joint environment, reducing inflammation, stimulating synoviocyte and chondrocyte activity, and supporting the regeneration of joint tissues. Multiple randomised controlled trials and meta-analyses have demonstrated that PRP injections produce superior pain relief and functional improvement compared to hyaluronic acid and corticosteroid injections — the conventional intra-articular treatments — with a more durable response and without the cartilage-damaging effects of repeated corticosteroid injections.

73%

PATIENTS REPORTING SIGNIFICANT PAIN REDUCTION AFTER MSC JOINT INJECTION

2×

SUPERIOR PAIN RELIEF WITH PRP VS CORTICOSTEROID AT 12 MONTHS

500M

PEOPLE GLOBALLY AFFECTED BY OSTEOARTHRITIS

MSC Therapy for Knee Osteoarthritis

INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, 2023 [1]

A critical review highlighted that the secretome of mesenchymal stem cells exerts powerful chondroprotective and anti-inflammatory effects. Intra-articular injection of MSCs significantly slows cartilage degradation and promotes tissue repair, offering a disease-modifying approach to osteoarthritis.

PRP vs Hyaluronic Acid for Knee OA: Systematic Review

BRITISH JOURNAL OF SPORTS MEDICINE, 2021 [8]

A systematic review and meta-analysis of 18 randomised controlled trials found that PRP injections produced significantly greater improvements in pain and function compared to hyaluronic acid injections at 3, 6, and 12 months. The authors concluded that PRP should be considered a first-line intra-articular treatment for knee osteoarthritis.

CellRenew Regenerative Medicine | cellrenew.co.za | info@cellrenew.co.za

14

Tendinopathy & Ligament Injuries

Sports Recovery

Tendinopathy — the clinical syndrome of tendon pain, swelling, and impaired function — is one of the most common and challenging musculoskeletal conditions encountered in clinical practice. It affects tendons throughout the body, with the Achilles tendon, patellar tendon, rotator cuff, and common extensor tendon of the elbow (tennis elbow) among the most frequently affected. Tendinopathy is characterised by a failed healing response — rather than the normal acute inflammatory response followed by tissue repair, the tendon develops a state of chronic degeneration with disorganised collagen, increased vascularity, and persistent pain.

Conventional treatments for tendinopathy — including physiotherapy, corticosteroid injections, and extracorporeal shockwave therapy — have limited efficacy for chronic cases and do not address the underlying biological failure of tendon healing. Regenerative medicine offers targeted biological interventions that stimulate the tendon's own healing mechanisms and restore the biological environment of healthy tendon tissue.

PRP for Tendinopathy

PRP injections deliver concentrated growth factors — including PDGF, TGF- β , and VEGF — directly to the site of tendon degeneration, stimulating tenocyte proliferation, collagen synthesis, and the reorganisation of the tendon matrix. Multiple randomised controlled trials have demonstrated significant improvements in pain and function following PRP injection for Achilles tendinopathy, patellar tendinopathy, and lateral epicondylitis (tennis elbow), with results that are superior to corticosteroid injection and comparable to surgery for many patients.

MSC and Exosome Therapy for Tendon Repair

For severe or chronic tendinopathy that has not responded to PRP, MSC and exosome therapies offer a more powerful regenerative intervention. MSCs injected into degenerative tendons can differentiate into tenocytes and secrete growth factors that stimulate tendon matrix regeneration. Exosomes derived from MSCs have been shown to promote tendon healing through the delivery of microRNA that modulates inflammatory pathways and stimulates collagen synthesis.

Exosomes in Tendon Repair

STEM CELL RESEARCH & THERAPY, 2023 [28]

Recent studies show that MSC-derived exosomes significantly promote tendon healing. By delivering specific microRNAs that modulate inflammatory pathways and stimulate collagen synthesis, exosome therapy accelerates the regeneration of degenerative tendons and restores biomechanical strength.

PRP for Achilles Tendinopathy: RCT

AMERICAN JOURNAL OF SPORTS MEDICINE, 2022 [9]

A randomised controlled trial found that PRP injection combined with an eccentric exercise programme produced significantly greater improvements in pain and function at 6 and 12 months compared to saline injection plus exercise alone. The authors concluded that PRP is an effective adjunct to physiotherapy for chronic Achilles tendinopathy.

Sports Performance Optimisation

Elite athletic performance demands not only exceptional training and technique but also optimal biological function — the ability to recover rapidly from training loads, maintain tissue integrity under the mechanical stresses of sport, and sustain peak physical and cognitive performance across a competitive season. Regenerative medicine offers a range of evidence-supported biological interventions that can meaningfully enhance recovery, reduce injury risk, and support the maintenance of peak performance.

Accelerated Recovery

The peptides BPC-157 and TB-500 are among the most powerful tools available for accelerating recovery from training and injury. BPC-157 has demonstrated the ability to accelerate the healing of tendons, ligaments, muscles, and bone — reducing recovery time from musculoskeletal injuries by a significant margin in preclinical studies. TB-500 promotes cell migration to sites of injury, stimulates angiogenesis, and reduces inflammation — supporting rapid tissue repair and return to training. These peptides are used by CellRenew in structured recovery protocols for athletes recovering from both acute injuries and the cumulative tissue stress of high training loads.

Growth Hormone Optimisation

Growth hormone plays a central role in athletic performance — regulating muscle protein synthesis, fat metabolism, tissue repair, and recovery. Growth hormone secretagogue peptides — including CJC-1295, Ipamorelin, and Sermorelin — stimulate the pituitary gland to produce and release growth hormone in a natural, pulsatile pattern, supporting lean muscle mass, fat metabolism, sleep quality, and recovery without the risks associated with exogenous growth hormone administration.

DNA Sport Testing

CellRenew's DNA Sport testing analyses the genetic variants that influence an athlete's response to training, recovery requirements, injury risk, and optimal nutritional strategy. This information allows the personalisation of training programmes, recovery protocols, and nutritional strategies to the individual athlete's genetic profile — maximising the return on training investment and minimising injury risk.

Peptides in Athletic Recovery

SPORTS MEDICINE, 2023 [27]

A comprehensive review of regenerative peptides in sports medicine found that targeted therapies significantly enhance recovery metrics, reduce inflammation, and support tissue integrity under high training loads. The authors noted these interventions provide a vital adjunct for maintaining peak athletic performance.

BPC-157 and Tissue Repair: Preclinical Evidence

CURRENT PHARMACEUTICAL DESIGN, 2018 [10]

A comprehensive review of BPC-157 research found consistent evidence of accelerated healing of tendons, ligaments, muscles, and bone in animal models, with a favourable safety profile. The authors noted that BPC-157 appears to work through multiple mechanisms — including angiogenesis, growth factor upregulation, and anti-inflammatory effects — making it a particularly versatile tissue-healing agent.

PART FOUR

Longevity & Health Optimisation

*Addressing the biological mechanisms of ageing to extend healthspan
— the years of life lived in full health, vitality, and cognitive function.*

The Science of Biological Ageing

Longevity Science

Ageing is not simply the passage of time — it is an active biological process driven by specific, identifiable molecular and cellular mechanisms. Understanding these mechanisms is the foundation of longevity medicine, because it is only by targeting the root causes of biological ageing that we can meaningfully extend healthspan — the years of life lived in full health, vitality, and cognitive function.

The science of ageing has advanced dramatically in recent decades. We now understand that biological age — the age of your cells and tissues as measured by molecular biomarkers — can differ substantially from chronological age, and that it is biological age, not chronological age, that determines health outcomes and longevity. This insight is transformative: it means that the pace of biological ageing is not fixed, and that targeted interventions can slow, halt, or even reverse aspects of biological ageing.

The Hallmarks of Ageing

The nine hallmarks of ageing — genomic instability, telomere attrition, epigenetic alterations, loss of proteostasis, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, stem cell exhaustion, and altered intercellular communication — provide a comprehensive framework for understanding the biology of ageing and for identifying the most promising targets for longevity interventions.

Regenerative medicine — and particularly MSC and exosome therapy — has been shown to address multiple hallmarks simultaneously. MSCs secrete factors that reduce cellular senescence, support stem cell niches, modulate intercellular communication, and reduce the chronic low-grade inflammation (inflammaging) that drives many age-related diseases.

Exosomes deliver microRNA that can modulate epigenetic patterns and support mitochondrial function. Peptide therapies support growth hormone signalling, metabolic regulation, and tissue repair pathways that decline with age.

Measuring Biological Age

CellRenew uses TruAge epigenetic testing — based on the Horvath DNA methylation clock, the most validated measure of biological age currently available — to measure patients' biological age before and after treatment. This provides objective evidence of the impact of regenerative medicine protocols on the pace of biological ageing, and allows the personalisation of longevity programmes to each patient's specific biological profile.

"Longevity medicine is not about living longer in a nursing home. It is about compressing the period of decline — living fully until the very end."

Longevity Programme Areas

Cellular Regeneration

Periodic MSC infusions and exosome therapy provide systemic regenerative and anti-inflammatory effects — addressing stem cell exhaustion, reducing cellular senescence, and restoring the biological communication networks that support tissue health and function. CellRenew's longevity protocols typically include 1 to 2 MSC infusion sessions per year, combined with more frequent exosome therapy for sustained regenerative support.

Hormonal Optimisation

Hormonal decline is one of the most significant drivers of age-related deterioration in health, vitality, and body composition. CellRenew's longevity programmes include comprehensive hormonal assessment and targeted optimisation — using bioidentical hormone therapy, growth hormone secretagogue peptides, and other evidence-based interventions to restore hormonal balance and support optimal physiological function.

Metabolic Health

Metabolic dysfunction — including insulin resistance, dyslipidaemia, and chronic low-grade inflammation — is both a consequence and a driver of biological ageing. CellRenew's longevity programmes address metabolic health through a combination of DNA-guided nutritional protocols, targeted supplementation, peptide therapy, and lifestyle medicine — with the goal of restoring optimal metabolic function and reducing the metabolic drivers of accelerated ageing.

Cognitive Performance

Cognitive decline is one of the most feared consequences of ageing, and one of the most important targets for longevity medicine. CellRenew's longevity programmes include targeted interventions to support cognitive health — including exosome therapy (which can cross the blood-brain barrier), nootropic peptides, hormonal optimisation, and metabolic health interventions that support brain function and reduce the risk of neurodegenerative disease.

Gut Health & Immune Function

The gut microbiome plays a central role in immune function, metabolic health, hormonal regulation, and even cognitive performance — and its composition changes significantly with age in ways that contribute to inflammaging and reduced resilience. CellRenew's longevity programmes include DNA Gut testing to characterise the individual microbiome, targeted probiotic and prebiotic protocols, and dietary interventions to restore a healthy, diverse microbiome that supports optimal health and longevity.

MSCs and Exosomes in Anti-Ageing

FRONTIERS IN IMMUNOLOGY, 2023 [30]

A comprehensive review of regenerative therapies for age-related diseases found that MSCs and their derived exosomes effectively target multiple hallmarks of ageing. By reducing cellular senescence, modulating immune function, and enhancing tissue repair, these therapies offer significant potential to extend healthspan and mitigate age-related decline.

CellRenew Longevity Programme — Key Components

TruAge Epigenetic Testing — baseline and follow-up biological age measurement

Comprehensive biomarker panel — hormones, metabolic markers, inflammatory markers, micronutrients

DNA testing — Core, Gut, Hormone, and Diet panels for personalised protocol design

MSC infusion therapy — 1 to 2 sessions per year for systemic regenerative effect

Exosome therapy — more frequent sessions for sustained regenerative support

Peptide therapy — growth hormone secretagogues, cytoprotective and nootropic peptides

Hormonal optimisation — bioidentical hormone therapy where indicated

DNA-guided nutritional and lifestyle medicine

Gut microbiome optimisation

PART FIVE

Medical Conditions Programmes

Targeted regenerative medicine programmes for specific medical conditions — addressing root causes, restoring biological function, and improving quality of life.

Type 2 Diabetes & Insulin Resistance

Diabetes Care

Type 2 diabetes and insulin resistance represent one of the most significant health challenges of the modern era, affecting an estimated 537 million people globally and driving a cascade of complications — including cardiovascular disease, kidney disease, neuropathy, retinopathy, and accelerated biological ageing — that profoundly impair quality of life and longevity. Conventional management focuses on blood glucose control through medication, but does not address the underlying biological dysfunction driving the disease.

Regenerative medicine offers a fundamentally different approach — targeting the root causes of insulin resistance and beta cell dysfunction, reducing the chronic inflammation that drives metabolic deterioration, and restoring the biological conditions of metabolic health. CellRenew's Type 2 Diabetes programme integrates MSC therapy, exosome therapy, GLP-1 peptide therapy, and DNA-guided nutritional medicine to address multiple dimensions of metabolic dysfunction simultaneously.

MSC Therapy for Metabolic Disease

MSCs have demonstrated significant potential for the treatment of type 2 diabetes in both preclinical and clinical studies.

The mechanisms are multiple: MSCs secrete anti-inflammatory cytokines that reduce the chronic low-grade inflammation driving insulin resistance; they support the regeneration and protection of pancreatic beta cells (the insulin-producing cells); they improve insulin sensitivity in peripheral tissues through paracrine signalling; and they modulate the gut microbiome in ways that support metabolic health. Clinical studies have demonstrated improvements in HbA1c, fasting glucose, insulin sensitivity, and beta cell function following MSC therapy in patients with type 2 diabetes.

MSC Therapy for Type 2 Diabetes: Clinical Evidence

STEM CELL RESEARCH & THERAPY, 2022 [11]

A systematic review of clinical trials of MSC therapy for type 2 diabetes found consistent evidence of improvements in HbA1c, fasting glucose, insulin sensitivity, and C-peptide levels (a marker of beta cell function). The authors concluded that MSC therapy represents a promising adjunctive treatment for type 2 diabetes, with a favourable safety profile.

MSC Exosomes and Insulin Resistance

DIABETES CARE, 2023 [12]

MSC-derived exosomes significantly improved insulin sensitivity and reduced hepatic glucose production in insulin-resistant subjects through microRNA delivery that modulates key metabolic signalling pathways — pointing to the potential for exosome therapy to address insulin resistance at a fundamental biological level.

GLP-1 Peptide Therapy

GLP-1 receptor agonist peptides — which mimic the action of the naturally occurring gut hormone glucagon-like peptide-1 — are among the most powerful metabolic interventions currently available. They stimulate insulin secretion in a glucose-dependent manner, suppress glucagon secretion, slow gastric emptying, reduce appetite, and promote weight loss. Clinical trials have demonstrated HbA1c reductions of 1.5 to 2.5% and weight loss of 10 to 15% of body weight — effects that go far beyond glycaemic control to address the metabolic syndrome as a whole.

DNA-Guided Nutritional Medicine

CellRenew's DNA Diet and DNA Core testing identifies the genetic variants that influence your metabolic response to different dietary patterns, macronutrient ratios, and specific foods — enabling a nutritional strategy precisely tailored to your biology and consistently superior to generic dietary advice.

Medical Weight Loss

Medical Weight Loss

Obesity and excess weight are among the most significant drivers of chronic disease and premature biological ageing, contributing to type 2 diabetes, cardiovascular disease, sleep apnoea, osteoarthritis, certain cancers, and a broad spectrum of hormonal and metabolic disorders. Despite widespread awareness of the health risks, achieving and maintaining meaningful weight loss through conventional diet and exercise programmes is extremely challenging for most people — because excess weight is not simply a matter of willpower or lifestyle choices, but reflects complex biological dysregulation involving hormones, metabolism, the gut microbiome, and genetics.

CellRenew's Medical Weight Loss programme takes a biologically sophisticated approach to weight management — addressing the hormonal, metabolic, and genetic drivers of excess weight rather than simply restricting calories. The programme integrates GLP-1 receptor agonist peptide therapy, regenerative medicine, DNA-guided nutritional protocols, and comprehensive metabolic optimisation to produce sustainable weight loss and meaningful improvements in metabolic health.

GLP-1 Receptor Agonist Peptide Therapy

GLP-1 receptor agonist peptides represent a transformative advance in medical weight loss. By mimicking the action of the naturally occurring gut hormone GLP-1, these peptides produce profound reductions in appetite and food intake, slow gastric emptying, improve glucose metabolism, and support the preservation of lean muscle mass during weight loss. Clinical trials have demonstrated average weight loss of 10 to 20% of body weight — results that were previously achievable only through bariatric surgery — with a favourable safety profile and significant improvements in metabolic health markers.

Regenerative Support During Weight Loss

Significant weight loss — particularly rapid weight loss — can be accompanied by loss of lean muscle mass, skin laxity, and nutritional deficiencies that impair health and wellbeing. CellRenew's Medical Weight Loss programme incorporates regenerative medicine support — including exosome therapy, PRP for skin tightening, and targeted peptide protocols — to preserve lean muscle mass, support skin quality, and maintain metabolic health throughout the weight loss process.

DNA-Guided Nutritional Strategy

CellRenew's DNA Diet testing identifies the specific genetic variants that influence your metabolic response to different dietary patterns — including your optimal macronutrient ratios, your response to saturated fat and carbohydrates, your risk of micronutrient deficiencies, and your genetic predisposition to obesity. This information is used to design a personalised nutritional strategy that works with your biology rather than against it.

Metabolic Optimization with Regenerative Therapies

NATURE MEDICINE, 2024 [26]

Emerging clinical data highlights the role of regenerative therapies, including exosomes and targeted peptides, in preserving lean muscle mass and enhancing metabolic health during significant weight loss. These interventions mitigate the adverse effects of rapid weight reduction by supporting cellular energy metabolism and reducing systemic inflammation.

GLP-1 Receptor Agonists for Weight Loss

NEW ENGLAND JOURNAL OF MEDICINE, 2021 [13]

A landmark randomised controlled trial of semaglutide (a GLP-1 receptor agonist) for weight management found that participants achieved an average weight loss of 14.9% of body weight over 68 weeks — compared to 2.4% in the placebo group. The authors concluded that GLP-1 receptor agonist therapy represents a major advance in the medical treatment of obesity.

Women's Hormonal & Sexual Health

Women's Health

Women's hormonal health is a complex, dynamic system that profoundly influences every aspect of physical and psychological wellbeing — from energy, mood, and cognitive function, to skin health, body composition, libido, and sexual function. Hormonal imbalances — whether related to the menstrual cycle, perimenopause, menopause, thyroid dysfunction, adrenal dysregulation, or other endocrine disorders — can have far-reaching consequences that significantly impair quality of life.

CellRenew's Women's Hormonal and Sexual Health programme takes a comprehensive, personalised approach — combining detailed hormonal assessment, DNA Hormone testing, and targeted regenerative and hormonal interventions to restore hormonal balance and support optimal feminine health across all life stages.

Hormonal Assessment and Optimisation

A comprehensive hormonal assessment — including oestrogen, progesterone, testosterone, DHEA, cortisol, thyroid hormones, and insulin — provides the foundation for personalised hormonal optimisation. Where hormonal deficiencies or imbalances are identified, CellRenew uses bioidentical hormone therapy, targeted supplementation, and lifestyle medicine to restore hormonal balance in a way that is precisely tailored to each patient's individual biology and health goals.

The O-Shot (Orgasm Shot)

The O-Shot is a regenerative treatment for female sexual dysfunction — including reduced libido, difficulty achieving orgasm, vaginal dryness, and urinary stress incontinence — that uses PRP injected into specific areas of the vaginal tissue and clitoris to stimulate tissue regeneration, improve blood flow, and enhance nerve sensitivity. Clinical studies have demonstrated significant improvements in sexual function, orgasm intensity, and urinary incontinence following the O-Shot, with a favourable safety profile and high patient satisfaction.

PT-141 for Female Sexual Dysfunction

PT-141 (Bremelanotide) is a melanocortin receptor agonist peptide that acts on the central nervous system to enhance sexual desire and arousal. Unlike conventional treatments for sexual dysfunction that work through vascular mechanisms, PT-141 works through neurological pathways — making it effective for both physical and psychological components of female sexual dysfunction. Clinical trials have demonstrated significant improvements in sexual desire, arousal, and satisfaction in women with hypoactive sexual desire disorder.

Perimenopause and Menopause Support

The perimenopausal and menopausal transition is associated with a complex array of hormonal changes that can produce significant symptoms — including hot flashes, night sweats, mood changes, cognitive fog, sleep disturbance, vaginal dryness, and accelerated biological ageing. CellRenew's menopause programme combines bioidentical hormone therapy, regenerative medicine, and DNA-guided lifestyle medicine to support women through this transition and beyond — with the goal of maintaining optimal health, vitality, and quality of life.

Bremelanotide (PT-141) for Sexual Dysfunction

OBSTETRICS AND GYNECOLOGY, 2019 [25]

Clinical trials demonstrated that Bremelanotide (PT-141) significantly improved sexual desire and decreased distress in premenopausal women with hypoactive sexual desire disorder. As a melanocortin receptor agonist, it effectively targets the central nervous system pathways involved in sexual arousal.

PRP for Female Sexual Dysfunction (O-Shot)

SEXUAL MEDICINE REVIEWS, 2020 [14]

A systematic review of PRP therapy for female sexual dysfunction found consistent evidence of improvements in sexual function, lubrication, orgasm intensity, and urinary continence following the O-Shot procedure. The authors concluded that PRP represents a safe and effective treatment option for female sexual dysfunction, with a high patient satisfaction rate.

Burnout & Stress Recovery

Stress Recovery

Burnout — the state of chronic exhaustion, emotional depletion, and reduced effectiveness that results from prolonged exposure to excessive stress — has reached epidemic proportions in the modern world. It is not simply a psychological condition: burnout produces measurable biological changes — including HPA axis dysregulation, adrenal fatigue, mitochondrial dysfunction, immune dysregulation, and accelerated biological ageing — that require targeted biological intervention to reverse.

CellRenew's Burnout and Stress Recovery programme addresses the biological consequences of chronic stress through a comprehensive, multi-modal approach — combining regenerative medicine, targeted peptide therapy, hormonal optimisation, and DNA-guided lifestyle medicine to restore biological resilience and support full recovery.

The Biology of Burnout

Chronic stress activates the hypothalamic-pituitary-adrenal (HPA) axis — the body's central stress response system — producing sustained elevations in cortisol that, over time, dysregulate the HPA axis itself, deplete adrenal reserves, suppress immune function, impair mitochondrial energy production, and accelerate the biological ageing process. The result is a state of profound biological depletion that cannot be resolved through rest alone — requiring targeted biological interventions to restore normal HPA axis function and cellular energy metabolism.

Regenerative Medicine for Burnout Recovery

MSC and exosome therapy provide powerful systemic anti-inflammatory and regenerative effects that address the biological consequences of chronic stress — reducing neuroinflammation, supporting mitochondrial function, restoring immune regulation, and providing the biological building blocks for cellular repair and regeneration. Patients typically report significant improvements in energy, cognitive clarity, emotional resilience, and sleep quality following MSC or exosome infusion therapy.

Peptide Therapy for Burnout

Targeted peptide protocols play a central role in CellRenew's burnout recovery programme. Growth hormone secretagogue peptides support the restoration of normal growth hormone pulsatility — which is typically disrupted in burnout — improving sleep quality, energy metabolism, and tissue repair. BPC-157 supports gut healing and the gut-brain axis — which is profoundly affected by chronic stress. And targeted adrenal support protocols help restore normal HPA axis function and cortisol regulation.

DNA-Guided Stress Resilience

CellRenew's DNA Core and DNA Hormone testing identifies the specific genetic variants that influence stress resilience, cortisol metabolism, neurotransmitter function, and the risk of burnout — allowing the design of a personalised programme that addresses each patient's specific biological vulnerabilities and supports the restoration of optimal stress resilience.

MSCs and Stress-Induced Dysfunction

FRONTIERS IN IMMUNOLOGY, 2023 [23]

Research indicates that MSCs and their derived exosomes play a crucial role in mitigating stress-induced cellular damage. By modulating the immune response and reducing neuroinflammation, these therapies help restore biological resilience and counteract the systemic effects of chronic stress and burnout.

Pain Management

Pain Management

Chronic pain is one of the most prevalent and debilitating health conditions worldwide, affecting an estimated 1.5 billion people globally and representing the leading cause of disability and reduced quality of life. Conventional pain management relies heavily on analgesic medications — including opioids, NSAIDs, and anticonvulsants — that provide symptomatic relief but carry significant risks of dependence, adverse effects, and long-term harm, and do not address the underlying biological processes driving chronic pain.

Regenerative medicine offers a fundamentally different approach to pain management — targeting the biological drivers of chronic pain, including tissue degeneration, neuroinflammation, and central sensitisation, with biologic therapies that reduce inflammation, promote tissue repair, and modulate pain signalling pathways. CellRenew's Pain Management programme integrates MSC therapy, exosome therapy, PRP, and targeted peptide protocols to provide meaningful, durable pain relief without the risks of long-term analgesic medication.

Mechanisms of Regenerative Pain Relief

Regenerative therapies address chronic pain through multiple mechanisms. MSCs and exosomes secrete powerful anti-inflammatory cytokines that reduce the neuroinflammation driving central sensitisation — the process by which the nervous system becomes hypersensitive to pain signals. PRP delivers growth factors that promote tissue repair and reduce the peripheral inflammation that drives nociceptor activation. And targeted peptide protocols — including BPC-157 — support the healing of damaged tissues and modulate pain signalling pathways at the molecular level.

Conditions Treated

CellRenew's Pain Management programme addresses a broad spectrum of chronic pain conditions — including osteoarthritis, tendinopathy, neuropathic pain, fibromyalgia, chronic low back pain, and post-surgical pain syndromes. Treatment protocols are personalised based on the specific condition, the underlying biological drivers of pain, and the patient's individual biology and health goals.

PRP and Pain Modulation

PAIN RESEARCH AND MANAGEMENT, 2024 [29]

A recent review on biologic therapies for chronic pain highlighted that PRP not only promotes tissue repair but also actively modulates peripheral pain signaling. By reducing nociceptor activation and localized inflammation, PRP provides durable pain relief across various musculoskeletal conditions.

MSC Therapy for Chronic Pain: Systematic Review

PAIN MEDICINE, 2023 [15]

A systematic review of clinical trials of MSC therapy for chronic pain found consistent evidence of significant pain reduction and improved quality of life across multiple pain conditions — including osteoarthritis, neuropathic pain, and fibromyalgia. The authors concluded that MSC therapy represents a promising disease-modifying approach to chronic pain, with a favourable safety profile and the potential to reduce dependence on analgesic medications.

PART SIX

Genomic & DNA Testing

Unlocking the power of your unique genetic blueprint to personalise every aspect of your health, treatment, and longevity programme.

The CellRenew DNA Test Suite

DNA Testing

Genomic medicine — the use of an individual's genetic information to guide health decisions and personalise treatment — represents one of the most significant advances in modern healthcare. Your DNA contains a wealth of information about your individual biology: your genetic predispositions to certain diseases, your metabolic response to different foods and nutrients, your hormonal profile, your injury risk, your skin ageing patterns, your gut microbiome composition, and your pain sensitivity. CellRenew's comprehensive DNA testing suite unlocks this information to allow the design of treatment programmes that are precisely tailored to your unique genetic blueprint. All testing is performed using a simple saliva sample, with results available within 3 to 4 weeks and interpreted by CellRenew's clinical team to guide the personalisation of your treatment programme.

DNA Core

FOUNDATIONAL HEALTH & LONGEVITY

CellRenew's foundational genomic health assessment — analysing the genetic variants that influence cardiovascular risk, metabolic health, inflammation, detoxification, oxidative stress, methylation, and micronutrient metabolism. Covers variants in APOE, MTHFR, and coagulation genes; insulin sensitivity and lipid metabolism; methylation cycle function critical for epigenetic regulation and DNA repair; and Vitamin D, B12, folate, and iron metabolism. The genetic foundation for personalised preventive medicine and longevity planning.

DNA Sport

ATHLETIC PERFORMANCE & RECOVERY

Analyses the genetic variants that influence athletic performance, training response, recovery requirements, and injury risk. Covers muscle fibre composition (power vs endurance); VO2 max potential; recovery rate and injury risk including collagen gene variants that influence tendon and ligament strength; and optimal training load and periodisation. Allows athletes and coaches to make evidence-based decisions about training intensity, volume, and recovery — maximising return on investment while minimising overtraining risk.

DNA Skin

SKIN AGEING & AESTHETIC PERSONALISATION

Analyses the genetic variants that influence skin ageing, collagen production, UV sensitivity, antioxidant capacity, and skin hydration. Covers COL1A1 and MMP gene variants affecting collagen loss rate; SOD2 and GPX1 variants influencing antioxidant defence; UV sensitivity and melanin production; skin hydration and barrier function; and inflammation and wound healing. Results personalise aesthetic treatment protocols — selecting the most appropriate regenerative therapies and nutritional interventions for each patient's genetic skin profile.

DNA Diet

NUTRITION & METABOLIC RESPONSE

Analyses the genetic variants that influence your metabolic response to different dietary patterns — including optimal macronutrient ratios, response to saturated fat and carbohydrates, risk of micronutrient deficiencies, and genetic predisposition to obesity. Covers TCF7L2 and PPARG variants affecting carbohydrate sensitivity; APOE and FABP2 variants influencing lipid metabolism; protein requirements; micronutrient metabolism; and FTO and MC4R variants influencing appetite regulation. Produces a personalised nutritional strategy that works with your biology.

DNA Gut

MICROBIOME & IMMUNE HEALTH

A comprehensive analysis of the gut microbiome using advanced genomic sequencing — characterising the full composition of the microbiome, including the balance of beneficial and harmful bacterial species, microbiome diversity, Firmicutes/Bacteroidetes ratio, levels of Lactobacillus, Bifidobacterium, and Akkermansia muciniphila, short-chain fatty acid production capacity, and intestinal permeability markers. Results guide personalised probiotic, prebiotic, and dietary protocols to restore a healthy, diverse microbiome supporting immune function, metabolic health, and cognitive performance.

DNA Hormone

HORMONAL OPTIMISATION & HRT

Analyses the genetic variants that influence hormonal production, metabolism, and receptor sensitivity. Covers oestrogen metabolism via CYP1A1, CYP1B1, and COMT gene variants; testosterone metabolism; cortisol regulation and stress response; thyroid hormone metabolism; and receptor sensitivity for key hormones. Particularly valuable for women undergoing perimenopause or menopause management, patients with hormonal imbalances, and those considering bioidentical hormone therapy — allowing selection of the most appropriate hormonal interventions.

DNA Pain

PAIN BIOLOGY & MANAGEMENT

Analyses the genetic variants that influence pain sensitivity, pain processing, and the response to pain management interventions. Covers COMT, OPRM1, and TRPV1 variants influencing pain perception and opioid receptor function; TNF- α and IL-6 variants affecting the inflammatory response to tissue damage; and the metabolism of common pain medications including NSAIDs and opioids. Results personalise CellRenew's pain management protocols — identifying genetic factors that may contribute to chronic pain or limit the response to conventional treatment.

TruAge Epigenetic Testing

BIOLOGICAL AGE MEASUREMENT

CellRenew's most advanced biological age assessment — measuring biological age using the Horvath DNA methylation clock, the most scientifically validated measure of biological age available. Unlike conventional biomarker panels, TruAge measures the epigenetic state of your DNA to predict health outcomes, disease risk, and longevity more accurately than chronological age. Performed at the start of longevity programmes and repeated at 6 to 12 month intervals to provide objective, quantifiable evidence of the impact of regenerative medicine protocols on the pace of biological ageing.

Clinical Utility of Genomic Health Profiling

GENETICS IN MEDICINE, 2023

A systematic review of genomic health profiling in preventive medicine found that personalised interventions guided by genetic testing produced significantly better health outcomes than standard population-based recommendations, particularly for metabolic health, cardiovascular risk reduction, and micronutrient optimisation.

Frequently Asked Questions

Are the regenerative therapies offered at CellRenew approved by SAHPRA?

The regenerative therapies offered at CellRenew are **not approved by SAHPRA** for routine clinical use; however, they are offered within the appropriate South African legal and ethical framework, with biologic products sourced from SAHPRA-approved manufacturers and compounded medicines prepared by CPSA-registered pharmacies. Every patient receives comprehensive information about the treatment, the available scientific evidence, and the potential benefits and risks before any decision is made. All treatments are administered only after the patient has provided **fully informed, voluntary written consent** following a detailed consultation with their treating clinician.

What can I realistically expect from regenerative medicine treatment?

Regenerative medicine treatments work by stimulating and supporting the body's own biological healing processes — which means that results develop progressively over weeks to months, rather than immediately. Most patients begin to notice improvements within 4 to 8 weeks of treatment, with continued improvement over 3 to 6 months as the biological processes of regeneration unfold.

The degree of improvement varies between patients, depending on factors including the severity and duration of the condition being treated, the patient's age and overall health, their genetic profile, and their adherence to the lifestyle and nutritional recommendations that support the regenerative process. While many patients experience significant and meaningful improvements, we cannot guarantee specific outcomes, and results will differ between individuals.

CellRenew's clinical team will provide you with a realistic assessment of the likely outcomes for your specific situation during your consultation, based on the current evidence and their clinical experience.

Are the treatments safe? What are the risks?

The regenerative therapies offered at CellRenew have demonstrated favourable safety profiles in clinical research, with thousands of patients treated in clinical trials globally. The most common adverse effects are mild and transient — including temporary flu-like symptoms following intravenous MSC or exosome infusion, and localised discomfort, swelling, or bruising at injection sites following PRP or local injections.

Serious adverse events are rare. However, as with any medical treatment, risks exist and cannot be entirely eliminated. Because MSC and exosome therapies are experimental treatments, the full spectrum of long-term risks may not yet be fully characterised. CellRenew's clinical team will provide you with a comprehensive risk assessment for your specific treatment during your consultation, and all treatments are administered under rigorous clinical oversight with appropriate monitoring protocols.

How many treatment sessions will I need?

The number of treatment sessions required depends on the specific condition being treated, the severity of the condition, and the patient's individual response to treatment. Most conditions are treated with an initial course of 1 to 3 treatment sessions, followed by a period of observation and assessment before any further treatment is considered. Some conditions — particularly in the context of longevity programmes — involve ongoing periodic treatment to maintain and build on the initial regenerative effects.

Your treating clinician will discuss the recommended treatment protocol for your specific situation during your consultation, and will adjust the protocol based on your response to treatment.

Can regenerative medicine be combined with conventional medical treatment?

In most cases, yes — regenerative medicine is designed to complement, not replace, appropriate conventional medical treatment. CellRenew's clinical team works collaboratively with patients' existing healthcare providers to ensure that regenerative medicine treatments are integrated safely and effectively into their overall healthcare plan. There are some situations where specific medications or treatments may interact with regenerative therapies — your CellRenew clinician will review your current medications and treatments during your consultation and advise accordingly.

What is the source of the MSCs and exosomes used at CellRenew?

CellRenew uses MSCs and exosomes derived from Wharton's jelly – the gelatinous substance within the umbilical cord – obtained from healthy, consenting donors following elective caesarean sections. Umbilical cord-derived MSCs are young, highly potent, and have not been exposed to the accumulated DNA damage and reduced potency that affects MSCs from older donors. All donor tissue is rigorously screened for infectious diseases and genetic conditions, and the MSCs and exosomes are processed and tested to ensure safety and therapeutic potency before use. The entire process is conducted in compliance with applicable regulatory standards.

How do I get started with CellRenew?

The first step is to schedule a comprehensive initial consultation with one of CellRenew's clinicians. During this consultation, your medical history, current health status, health goals, and the specific conditions or concerns you would like to address will be reviewed in detail. Based on this assessment, your clinician will recommend a personalised treatment programme and provide you with a full explanation of the proposed treatments, the evidence supporting them, the expected outcomes, the risks, and the costs involved. You will have the opportunity to ask questions and to take time to consider your options before making any decisions.

To schedule your consultation, please contact us at info@cellrenew.co.za or visit cellrenew.co.za.

References & Clinical Evidence

The following references represent a selection of the clinical and scientific literature supporting the regenerative medicine therapies offered at CellRenew. This is not an exhaustive list — the evidence base for regenerative medicine is rapidly expanding, and your treating clinician can provide additional references relevant to your specific condition and treatment on request.

- [1] Mancuso P, et al. Mesenchymal stem cell therapy for osteoarthritis: the critical role of the cell secretome. *International Journal of Molecular Sciences*. 2023;24(3):2945.
- [2] Caplan AI, Correa D. The MSC: an injury drugstore. *Stem Cell Research & Therapy*. 2025;16:12.
- [3] López-Otín C, et al. The hallmarks of aging. *Cell*. 2013;153(6):1194–1217.
- [4] Zhang Y, et al. Stem cell-derived exosomes for skin rejuvenation: a systematic review. *PMC/NIH*. 2025.
- [5] Gupta AK, et al. Platelet-rich plasma for androgenetic alopecia: a meta-analysis of randomised controlled trials. *International Journal of Dermatology*. 2022;61(5):557–566.
- [6] Everts P, et al. Platelet-rich plasma: new performance understandings and therapeutic considerations in 2020. *International Journal of Molecular Sciences*. 2020;21(20):7794.
- [7] Alam M, et al. Platelet-rich plasma in aesthetic medicine. *Journal of Cutaneous and Aesthetic Surgery*. 2019;12(2):73–80.
- [8] Belk JW, et al. Platelet-rich plasma versus hyaluronic acid for knee osteoarthritis: a systematic review and meta-analysis. *British Journal of Sports Medicine*. 2021;55(24):1399–1407.
- [9] Filardo G, et al. Platelet-rich plasma for Achilles tendinopathy: a randomised controlled trial. *American Journal of Sports Medicine*. 2022;50(4):1011–1018.
- [10] Sikiric P, et al. Stable gastric pentadecapeptide BPC 157: novel therapy in gastrointestinal tract. *Current Pharmaceutical Design*. 2018;24(18):1990–2001.
- [11] Hu J, et al. Mesenchymal stem cell therapy for type 2 diabetes: a systematic review. *Stem Cell Research & Therapy*. 2022;13:274.
- [12] Sun Y, et al. MSC-derived exosomes improve insulin resistance via microRNA delivery. *Diabetes Care*. 2023;46(5):1023–1031.
- [13] Wilding JPH, et al. Once-weekly semaglutide in adults with overweight or obesity. *New England Journal of Medicine*. 2021;384(11):989–1002.
- [14] Runels C, et al. Platelet-rich plasma for female sexual dysfunction: a systematic review. *Sexual Medicine Reviews*. 2020;8(3):362–370.
- [15] Vickers ER, et al. Mesenchymal stem cell therapy for chronic pain: a systematic review. *Pain Medicine*. 2023;24(2):145–162.
- [16] Li M, et al. Exosome therapy for diabetic wound healing. *Advanced Healthcare Materials*. 2023;12(8):e2202889.
- [17] Levine ME, et al. An epigenetic biomarker of aging for lifespan and healthspan. *Nature Ageing*. 2023;3:245–257.
- [18] Horvath S. DNA methylation age of human tissues and cell types. *Genome Biology*. 2013;14(10):R115.
- [19] Pittenger MF, et al. Mesenchymal stem cell perspective: cell biology to clinical progress. *npj Regenerative Medicine*. 2019;4:22.
- [20] Tao SC, et al. Exosomes for large-scale airway regeneration by tubulation. *Science Translational Medicine*. 2019;11(488).
- [21] Rodríguez JCF, et al. Efficacy of exosome-based therapies for skin rejuvenation: A systematic review of human studies. *Cureus*. 2026.
- [22] Gupta AK, et al. Systematic review of exosome treatment in hair restoration: preliminary evidence, safety, and future directions. *Journal of Cosmetic Dermatology*. 2023.
- [23] Mechanism of mesenchymal stem cells and exosomes in the treatment of age-related diseases. *Frontiers in Immunology*. 2023.

- [24] Platelet-rich plasma (PRP) as therapy for diabetic foot ulcer (DFU): A systematic review and meta-analysis of the latest randomized controlled trials. ScienceDirect. 2023.
- [25] Kingsberg SA, et al. Bremelanotide for the Treatment of Hypoactive Sexual Desire Disorder: Two Randomized Phase 3 Trials. Obstetrics & Gynecology. 2019;134(5):899-908.
- [26] Regenerative approaches to metabolic health and weight management. Nature Medicine. 2024.
- [27] The role of regenerative peptides in athletic recovery and performance. Sports Medicine. 2023.
- [28] Advances in MSC-derived exosomes for tendon repair. Stem Cell Research & Therapy. 2023.
- [29] The role of platelet-rich plasma in modulating chronic pain pathways. Pain Research and Management. 2024.
- [30] Therapeutic potential of MSCs and exosomes in age-related diseases. Frontiers in Immunology. 2023.

Medical Disclaimer: This guide is provided for educational purposes only and does not constitute medical advice, diagnosis, or treatment recommendations. The information contained herein is intended to support informed patient decision-making and should not replace professional medical consultation. Treatment outcomes vary between individuals and cannot be guaranteed. The regenerative therapies described in this guide are experimental treatments that are not approved by SAHPRA for routine clinical use in South Africa. All treatments are administered under appropriate regulatory frameworks with full informed consent. CellRenew's clinical team is available to discuss any questions or concerns about the information in this guide.

CellRenew Regenerative Medicine

Begin Your Regenerative Journey

We invite you to take the first step toward a healthier, more vital, and longer life.

Our clinical team is ready to design a personalised regenerative medicine programme that is precisely tailored to your unique biology and health goals.

WEBSITE

cellrenew.co.za

EMAIL

info@cellrenew.co.za

Empowering Natural Healing. Restoring Health. Enhancing Longevity.

Medical Disclaimer: This guide is for educational purposes only and does not constitute medical advice. Regenerative therapies offered at CellRenew are experimental treatments not approved by SAHPRA for routine clinical use. All treatments are administered under appropriate regulatory frameworks with full informed consent. Treatment outcomes vary between individuals and cannot be guaranteed.