MitoCharge
Powered by QuantumTX

MITOCHARGE

OverviewofClinical&Community Studies

A Patented Magnetic Muscle Mitochondria Activation Platform from:

NUS National University of Singapore

ETH zürich

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Contents

1 Introduction

QuantumTX Pte. Ltd. (QTX) is a Singapore med-tech / health-tech company employing a proprietary MitoCharge technology to bring about the benefits of exercise without additional physical strain. By directly activating muscles' mitochondria, the technology activates energy production pathways typically triggered by 30-60 minutes of aerobic training, albeit in brief 10-minute sessions.

Resultantly, regular weekly sessions improve muscle energy and performance, enhancing users' balance, mobility and even reducing their risk of falls. Like exercise, MitoCharge muscle activation also triggers the release of myokine signals which improve metabolism, promote regeneration and help manage inflammation throughout the body.

MitoCharge technology comes out of years of research at the National University of Singapore and ETH Zurich, Switzerland. Inspired by initial experiments funded by the European Space programme, our founding scientist, A/Prof Alfredo Franco-Obregon, has published more than 30 peer-reviewed journals reviewing how these magnetic fields influence muscle physiology and signalling, helping to manage aging & frailty, metabolic disease and even cancer *.

This overview describes the utility of MitoCharge technology studied in clinical and community settings and highlights the potential for it to be the World's 1st stress-free way to deliver "exercise as medicine".

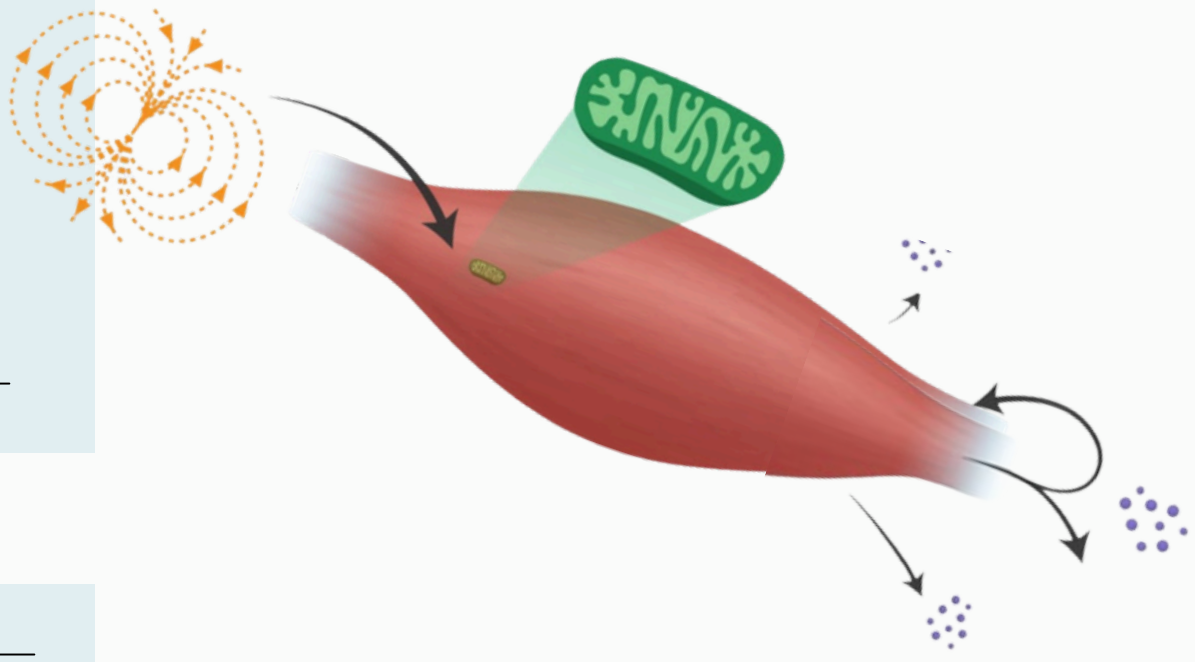
*Link to References and Publications: https://medicine.nus.edu.sg/biceps-lab/publications/

HOW DOES MITOCHARGE WORK?

1. Muscle Magnetic Mitohormesis

ACTIVATE MUSCLE WITHOUT PHYSICAL STRAIN

Electro Magnetic waves activate and train muscle triggering beneficial adaptations similar to exercise.



2. Mitochondria Activation

INCREASE ENERGY OF CELLS

Mitochondria turn on and create energy needed for work, repair and rebuilding.

3. Myokine Signaling

IMPROVE VARIOUS BODILY FUNCTIONS

Muscle signals (called “Myokines”) are released to improve other bodily functions like metabolism, regeneration, moderating inflammation, etc...

MitoCharge technology is able to deliver the benefits of exercise without physical strain:

- Improves muscle strength and mobility
- Reduces pains
- Improves muscle energetics and performance
- Promotes muscle rebuilding and recovery

BIXEPS Fitness Device

QMT Medical Device

To date, MitoCharge devices including the BIXEPS Fitness and Wellness Devices and QMT Medical Devices, have been deployed in more than 70 locations around Singapore. Thousands of seniors each week use MitoCharge devices to overcome their frailty, improve their lower-limb function and to remain active and independent.

QTX has partnered with various clinical research groups and invested into multiple clinical and community trials to further validate the utility of the technology.

This overview highlights findings from 11 trials, involving more than 650 users, which shows how regular MitoCharge sessions can leverage exercise physiology pathways to enhance recovery and improve long-term health and sports outcomes.

2 Clinical Publications

1) REGULAR MITOCHARGE THERAPY CREATES TRAINING ADAPTATIONS IN USERS' IMPROVING USERS MOBILITY, BODY COMPOSITION AND REDUCING PAINS WITH 10 MINUTES EACH WEEK

A community-based study was conducted on 101 adults who received 12 weeks of MitoCharge therapy [1]. Participants underwent brief 10-minute MitoCharge sessions on alternate legs each week. Functional performance of the participants was assessed using the Short Physical Performance Battery (SPPB) test conducted at baseline (Week 1) and at the end of the programme (Week 12). Pain levels were evaluated using the Visual Analog Scale (VAS) at both time points, and body composition was measured using the InBody 770 device at the baseline and after 4 weeks and 8 weeks.

Majority of the adults undergoing weekly MitoCharge therapy achieved statistically significant improvements in mobility, muscle composition and pain reduction.

85%

of adults showed **improvements in mobility, balance and sit-to-stand** abilities (+15%)

67.5%

of adults showed **significant reductions in pain** levels (-30%)

72%

ofadultsshowed a **1.2%* increaseinlean musclemass** after 8 sessions ($p < 0.05$)

(*roughly equivalent to the averagemusclelossin1year for persons aged > 60 years old)

72%

ofadults showeda**4% decrease intotal bodyfat**and **4% decrease inVisceral Fat Area** after 8 sessions ($p < 0.01$)

Publication:
1. **Venugobal et al. (2023)** Brief, weekly magnetic muscle therapy improves mobility and lean body mass in older adults: a Southeast Asia community case study. Aging (Albany NY), 15(6), 1768. https://doi.org/10.18632/aging.204597

2) ADJUNCT MITOCHARGE THERAPY ALONGSIDE HOME EXERCISES SIGNIFICANTLY IMPROVES LATE STAGE KNEE OSTEOARTHRITIS PROGNOSIS

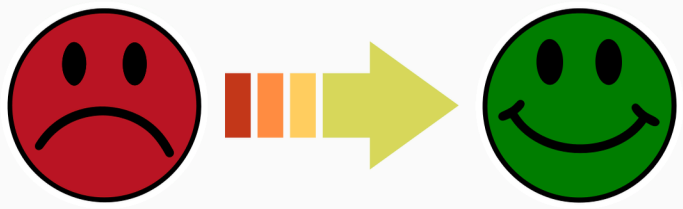
Osteoarthritis (OA) is a degenerative joint disease characterized by the breakdown of cartilage and underlying bone, leading to pain, stiffness, and reduced joint function, which impairs mobility and quality of life.

A double-blinded, randomized controlled trial was conducted with 60 patients with late-stage knee OA. Participants were assigned to receive either 10-minute MitoCharge sessions or sham therapy, twice a week for 8 weeks [2]. In addition to this, all patients carried out home-based exercises designed by physiotherapists.

MitoCharge therapy sessions was well tolerated, with no adverse effects. From this study, it was found that the combination of MitoCharge therapy and home-based exercises helped patients experience significant improvements in knee strength, pain scores and function.

5X **more strength gains**

inindividualswith MitoCharge treatment



60% **additional pain reduction**

inindividualswithMitoCharge treatment

Further, weekly MitoCharge sessions was able to improve average pain reduction with exercise alone from 18% to 30%, representing a 60% gain in pain control.

Also, the treated cohort saw significant gains in knee strength scores at 8 weeks, 5 - 20 times greater than the strength gains in the control group, which had no significant strength improvements.

Results also showed that females exhibited greater gains in knee strength than males whereas males experienced greater pain relief following MitoCharge therapy.

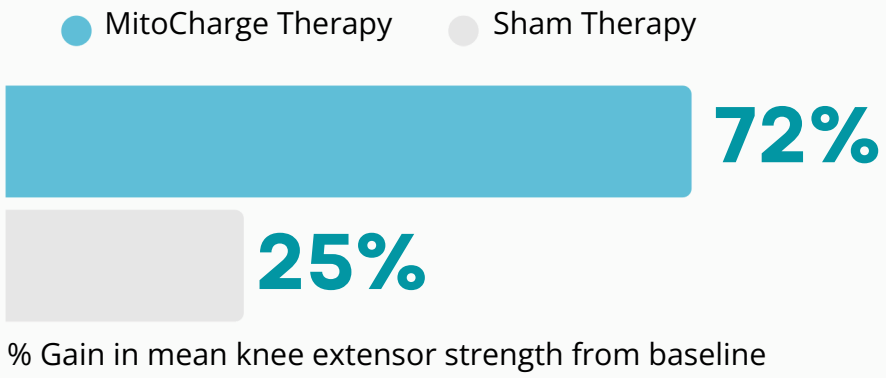
Publication: 2. **Wang et al. (2024)** The effects of pulsed electromagnetic field therapy on muscle strength and pain in patients with end-stage knee osteoarthritis: A randomized control trial. Frontiers in Medicine, 11, 1435277.
https://doi.org/10.3389/fmed.2024.1435277

3) MITOCHARGE ACTIVATION DRIVES SUSTAINED GAINS IN KNEE STRENGTH BEYOND ACTIVE TREATMENT PERIOD IN MILD TO MODERATE KNEE OA PATIENTS

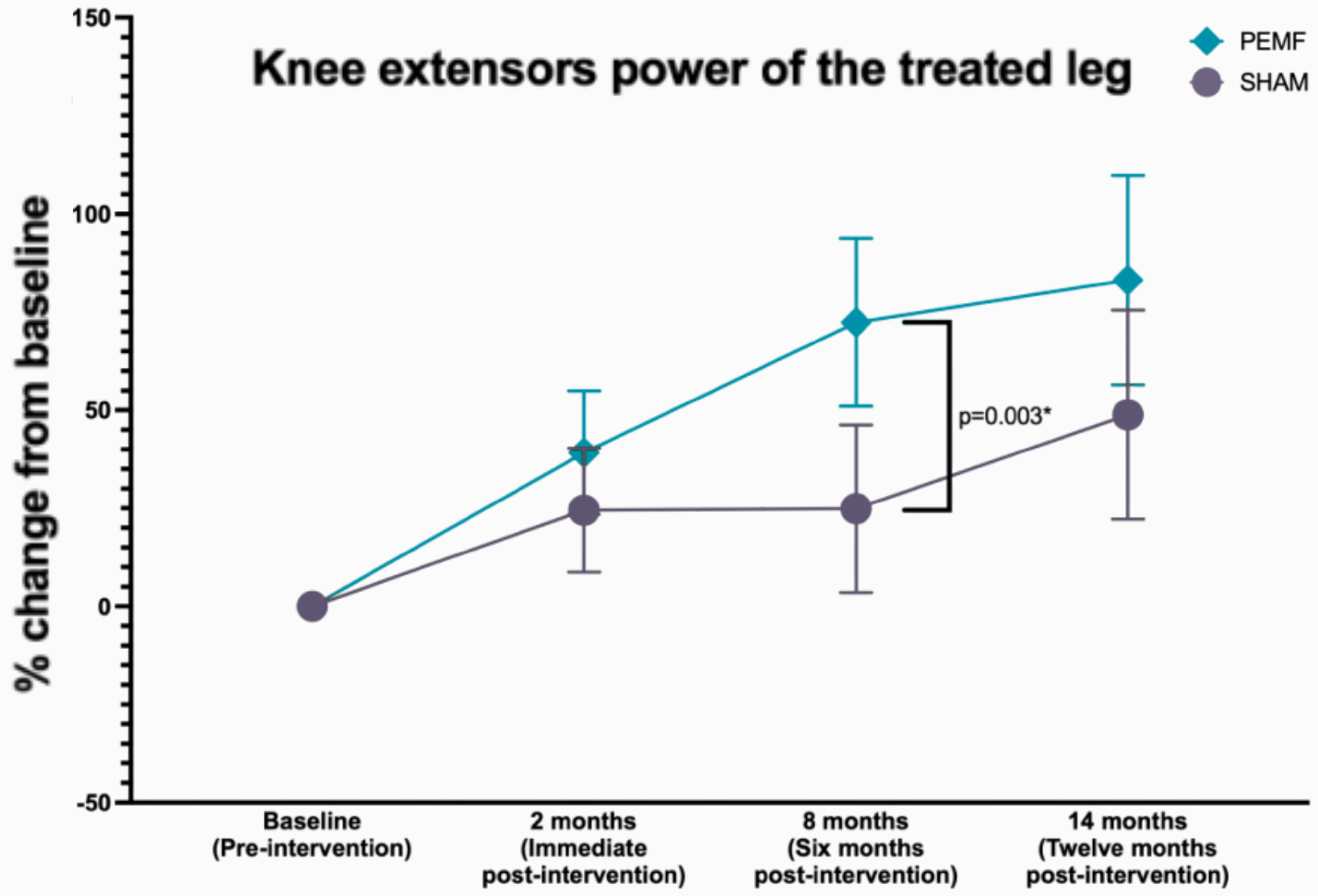
A double-blind randomized controlled trial evaluated a higher than usual MitoCharge dosing protocol (30 minutes on one leg, thrice weekly for 8 weeks) in 60 patients with mild to moderate knee osteoarthritis. The intervention was well tolerated, with no adverse events despite the intensified exposure.

The treated group showed significant gains in knee extensor and flexor strength compared to the control group, peaking at 6 months post-intervention.

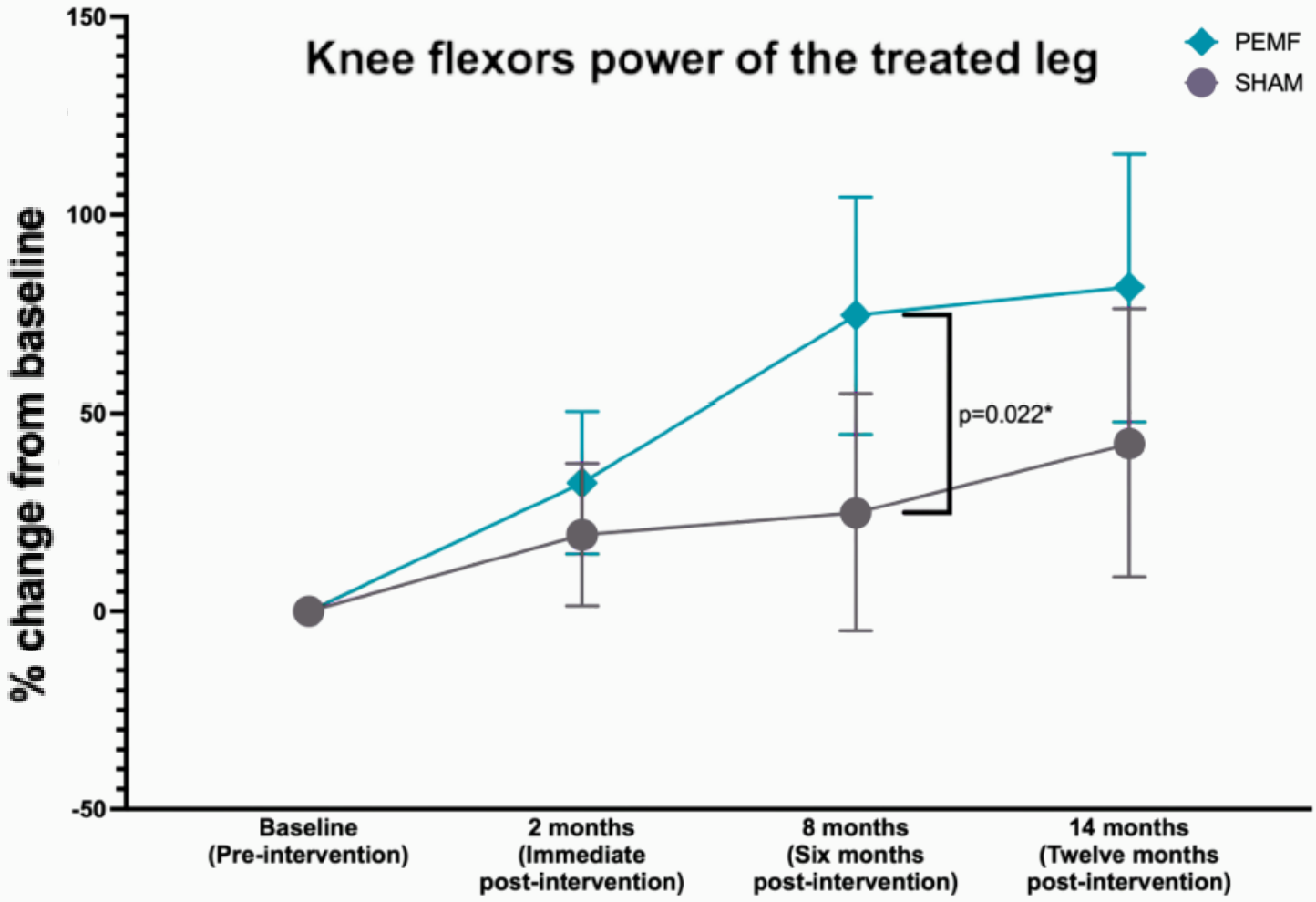
At 6 months post-intervention:



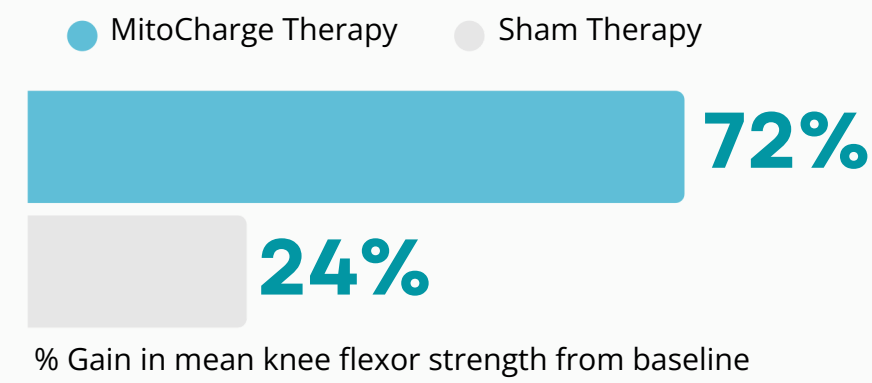
Gains in mean knee extensor strength from baseline



Gains in mean knee flexor strength from baseline



At 6 months post-intervention:



Notably, the higher-than-typical unilateral dosing may not target the optimal mitohormetic window for mitochondrial activation. Prolonged stimulation could create non-optimal stress that attenuates adaptive responses, potentially favoring localized strength gains over broader systemic effects.

Overall, the findings support MitoCharge as an intervention to improve knee strength in OA, while highlighting the importance of dose optimization and combination protocols when broader functional or systemic pain-relief outcomes are desired.

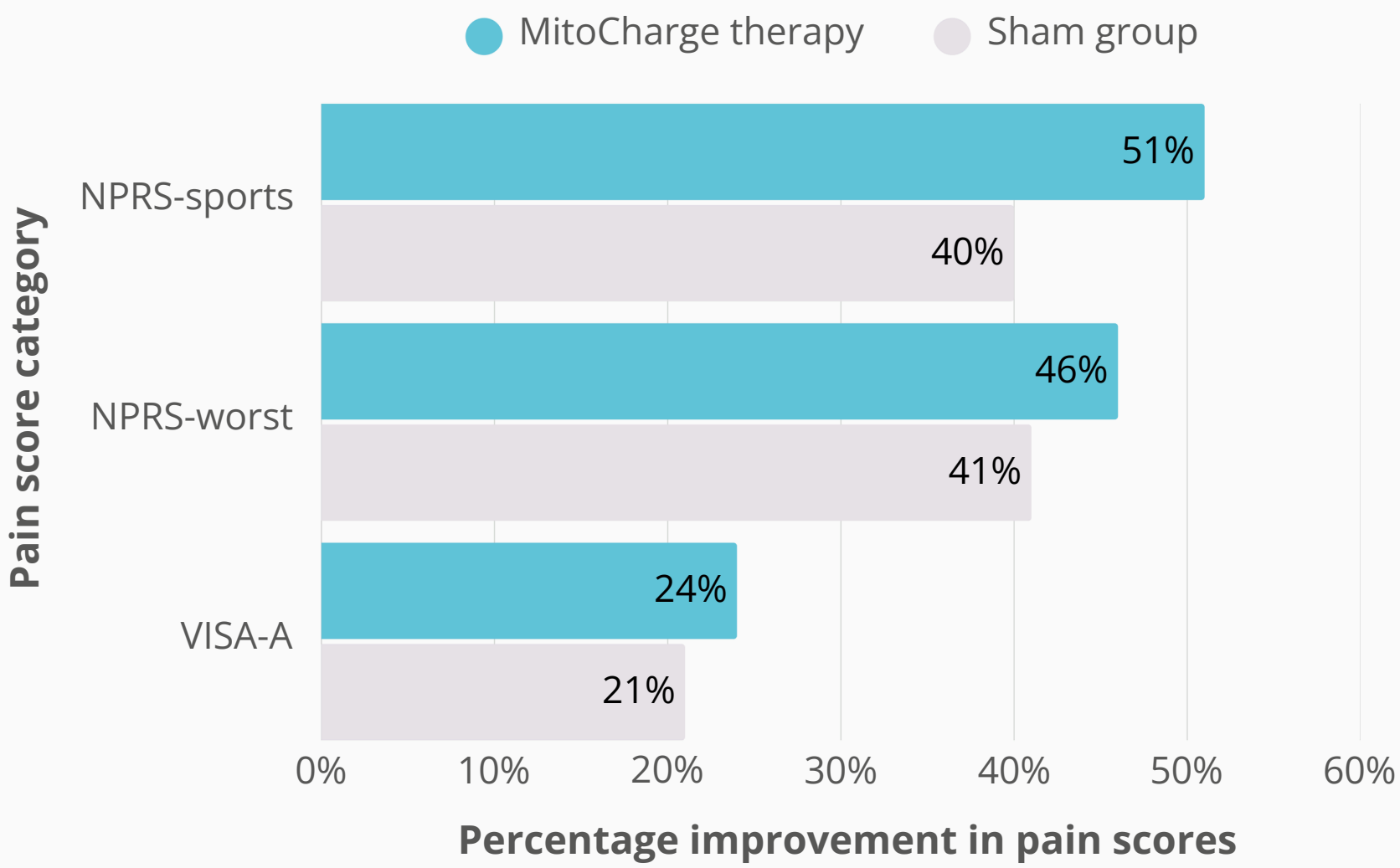
Publication: 3. **Lau et al. (2026)** "Pulsed Electromagnetic Field Therapy for Mild-to-Moderate Knee Osteoarthritis: A Double-Blind, Randomized, Placebo-Controlled Clinical Trial." Journal of Cachexia, Sarcopenia and Muscle 17.1 (2026): e70199. https://doi.org/10.3390/jcm14186413

4) MITOCHARGE ENHANCED PAIN RELIEF, TENDON HEALING AND SPORTS PARTICIPATION FOR ACHILLES TENDINOPATHY PATIENTS

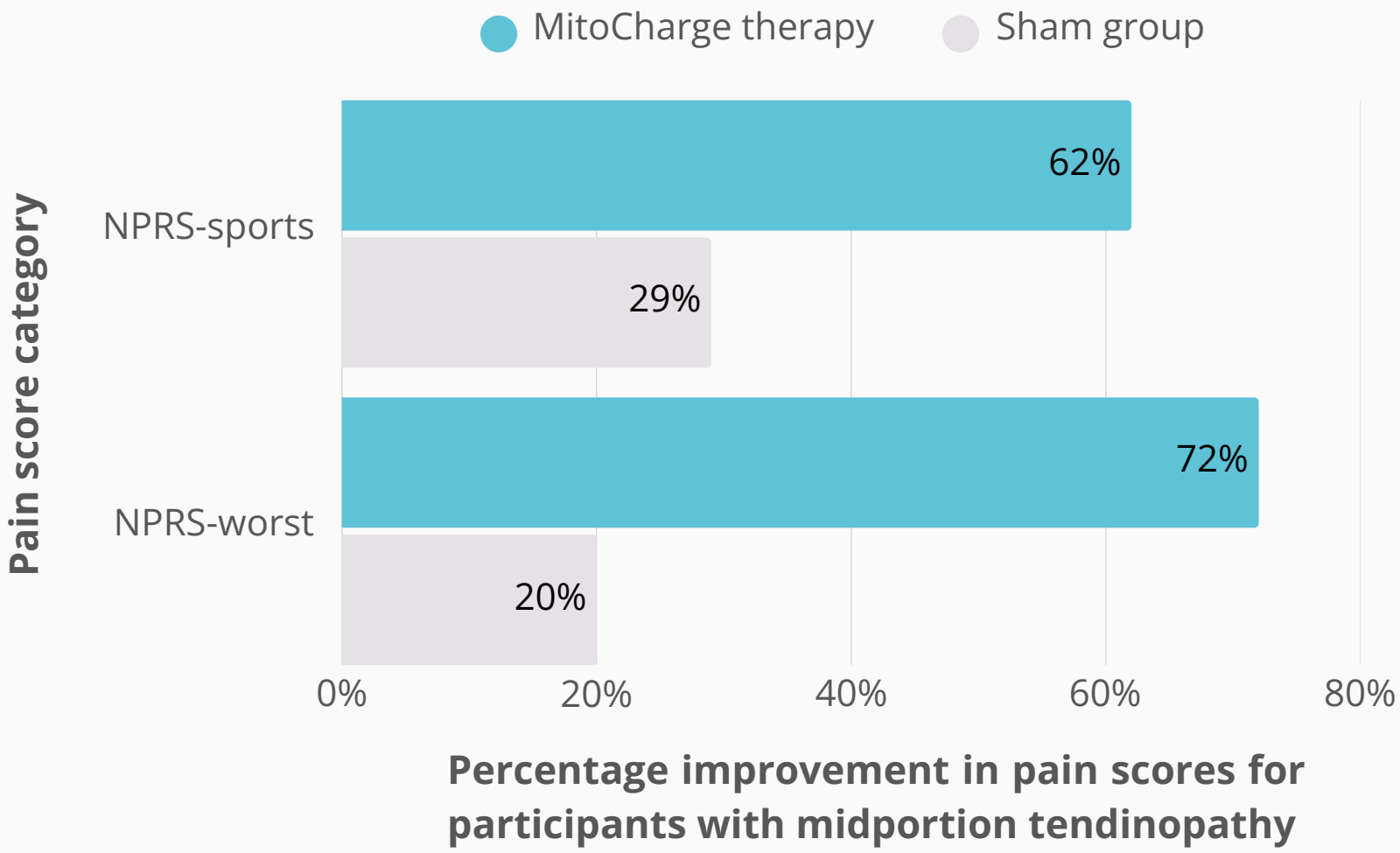
Achilles tendinopathy is a common overuse injury causing pain, swelling, and functional impairment due to poor tendon healing, typically managed first with nonoperative therapies like eccentric exercise.

A double-blind randomized controlled trial was conducted with 40 participants with mid-portion Achilles tendinopathy who were assigned to receive either MitoCharge therapy alongside a 12-week exercise regimen or sham treatment plus exercise [3]. MitoCharge therapy was administered twice weekly for 8 weeks, and outcomes — including pain, function, tendon neovascularity, and sports activity — were assessed over 12 weeks.

Overall, both control and treated groups showed significant improvements in pain (evaluated using VISA-A scale and numeric pain rating score (NPRS)).



Further subgroup analysis showed that participants with midportion tendinopathy receiving MitoCharge therapy experienced significantly greater pain reductions than those in the sham group at both week 4 and week 12.



Both groups showed reductions in tendon neovascularity, which could be asssociated with reduced pain and better tendon healing. Notably, male and middle-aged (31 to 45 years) participants in the treatment group exhibited 33% to 84% lower neovascularity scores at Week 8 compared to their counterparts in the control group.

291%

greater weekly sports participation
in treated group versus control group, in midportion tendinopathy subgroup

Sports participation also increased significantly in both groups over the 12-week period. In the midportion tendinopathy subgroup, the treatment group had nearly 3 times higher weekly sports participation compared to the control group ($p<0.05$).

Publication:
4. **Ko et al. (2024)** Short-term Effects of Pulsed Electromagnetic Field Therapy for Achilles Tendinopathy. Orthopaedic Journal of Sports Medicine 12, no. 11.
https://doi.org/10.1177/23259671241284772

5) 16 WEEKS OF MITOCHARGE THERAPY AFTER KNEE-REPAIR SURGERY ENHANCED PATIENTS' MUSCLE ENERGETICS & REDUCED DECONDITIONING, LEADING TO ENHANCED POST-SURGICAL RECOVERY

Anterior cruciate ligament (ACL) reconstruction is a common orthopedic procedure. Recovery is often hindered by persistent muscle weakness, mitochondrial dysfunction and elevated systemic ceramides - bioactive lipids linked to inflammation and metabolic impairment.

A double-blinded randomized control trial with 20 ACL reconstruction surgery patients was conducted [4]. All patients received standard of care rehab programmes. The treated group received additional 10 minutes of MitoCharge therapy on the operated legs each week for 16 weeks. The control group received sham therapy for 16 weeks.

After MitoCharge therapy, the treated group showed trends of reduced deconditioning and faster recovery, with baseline muscle volume restored by 12 weeks versus 16 weeks in the control group.

^{31}P MRS analysis showed that the treated group significantly experienced improved muscle energetics compared to the control group.

Additionally, blood biomarkers indicated enhanced muscle regeneration and recovery in the treated group, a trend not observed in the control group.

The treated group also had significant reductions in ceramide levels, indicating improved systemic metabolic and inflammatory status.

25%

faster recovery in the Treated group compared to the Control group

Publication: 5. **Stephenson et al. (2022)** Magnetic field therapy enhances muscle mitochondrial bioenergetics and attenuates systemic ceramide levels following ACL reconstruction: Southeast Asian randomized-controlled pilot trial. Journal of Orthopaedic Translation, 35, 99-112 https://doi.org/10.1016/j.jot.2022.09.011

6) MITOCHARGE ACTIVATION INCREASES ANTI-CANCER MYOKINE RELEASE, POTENTIALLY ASSISTING IN CANCER SURVIVORSHIP OUTCOMES

Cancer remains a major global health challenge, with rising cancer rates linked to sedentary lifestyles. Exercise has been shown to reduce cancer risks via muscle-driven metabolic and anti-inflammatory changes. However, many cancer survivors are often weakened by chemotherapy and physical deconditioning, making exercise challenging.

Recent studies have shown that brief exposure to MitoCharge therapy is able to mimic exercise benefits by enhancing muscle mitochondrial function and release anti-cancer myokines. Notably, MitoCharge-treated mice showed stronger breast cancer suppression than exercised mice*.

A double-blinded, randomized trial was conducted with 36 healthy adults [5]. The aim was to investigate the potential of MitoCharge therapy as a way to enhance the anticancer properties of blood in healthy individuals. Participants (30 to 45 years of age) were randomly assigned to the treated group, receiving 10-minute MitoCharge sessions to alternating thighs twice weekly for 4 weeks (80 minutes of total exposure) or the sham exposure group. Blood sera was then collected at the 1, 4 and 8 week mark and given to cancer cell lines to evaluate for anti-cancer effects.

19%

reducedcancerviability in week 8femaleMitocharge-treated sera comparedtofemalecontrol sera

Publication:
***Tai, Yee Kit, et al. (2024)** "Secretome from magnetically stimulated muscle exhibits anticancer potency: novel preconditioning methodology highlighting HTRA1 Action." Cells 13.5 (2024): 460. https://doi.org/10.3390/cells13050460

Blood sera from females showed significant changes to anti-cancer blood markers whereas blood sera from males did not see significant changes. Blood sera from the treated and control groups were also given to non-cancerous cell lines, which were unaffected, suggesting that MitoCharge therapy has cancer-specific action.

Sera from MitoCharge-treated females, when applied to cancer cells, resulted in* :

16.1% 28.2% 11.8%

reduction in breast **cancer cell proliferation**,

reduction in breast **cancer cell invasion,** and

reductions in **cancer cell migration** compared to the control group.

*assessed by cell viability, migration and invasion assays

Additionally, breast cancer cells treated with female human serum from the treated group showed suppression of TGF-β-related EMT markers (e.g., TWIST, SNAI1, SNAI2, Vimentin), which confirmed the inhibition of cancer cell, aggressiveness.

Biomarker analysis also indicated positive systematic modulation in response to MitoCharge therapy. Angiogenic markers (e.g. Endoglin, VEGF-A/D, PLGF, BMP-9) were reduced, and beneficial myogenic myokines (e.g. Apelin, LIF) were upregulated. MitoCharge therapy was safe and well-tolerated.

Publication:
6. **Iversen et al. (2025)** One Month of Brief Weekly Magnetic Field Therapy Enhances the Anticancer Potential of Female Human Sera: Randomized Double-Blind Pilot Study. Cells, 14(331). https://doi.org/10.3390/cells14050331

7) MITOCHARGE ACTIVATION IMPROVES GLYCAEMIC CONTROL AND INSULIN RESISTANCE IN TYPE 2 DIABETES MELLITUS PATIENTS WITH CENTRAL OBESITY

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder characterized by insulin resistance and high blood sugar levels. Its prevalence continues to rise due to the aging population, poor diets, obesity and increasingly sedentary lifestyles.

A single arm trial was conducted with 40 T2DM patients with initial HbA1c blood sugar levels at 7.0% - 10.0% and they received 10-minute MitoCharge sessions once a week for 12 weeks. Patients had a baseline BMI of between 23.0 and 32.5 kg/m^2.

88.9%

of patients with **centralobesity**showed improvement compared to

32.3%

of patients **withoutcentralobesity**

There were significant decreases in HbA1c levels for participants with central obesity (waist-to-hip ratio ≥ 1.0), decreasing from 7.5% to 7.1%.

For the overall cohort, trends towards better metabolic disease control was observed, suggesting potential glycaemic benefits, especially for T2DM patients with central obesity.

18.8%

average **reduction in insulin resistance** (HOMA-IR) [3.2 to 2.6]

Publication:
7. **Tseng et al. (2025)** "Investigating the Metabolic Benefits of Magnetic Mitohormesis in Patients with Type 2 Diabetes Mellitus." Journal of Clinical Medicine 14.18 (2025): 6413. https://doi.org/10.3390/jcm14186413

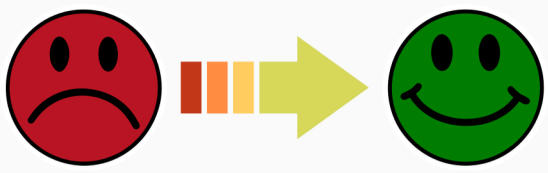
3 Community Studies

(ReportsfromCommunityStudiesareheldonFilewithQuantumTX.AvailableonRequest)

1) WEEKLY MITOCHARGESESSIONS IMPROVED FUNCTIONALOUTCOMES, PRODUCTIVITYANDCLIENT ENGAGMENT RATES IN COMMUNITYCARE CENTRES

Between April 2022 and July 2023, QuantumTX collaborated with 4 Social Service Agencies in the community to provide MitoCharge programmes to 206 elderlies in the community. For this programme, seniors received 12 weekly MitoCharge muscle-stimulation sessions to supplement their existing activities, and seniors were assessed on changes in mobility and quality of life.

Overall, two-thirds of seniors showed improvements in their functional tests (mobility, balance and sit-to-stand) scores, with average improvements of 5% - 21%.



72.5%

ofseniorswith existing pains experiencedan **average reduction of 38% in pain level**

68.3%

ofseniorsshowedan average of **7.72% gain in the 5 times sit-to-stand** timing

68.7%

ofseniorsshowedanaverage of **21.3% gain in gait speed**

66.8%

ofseniors showedanaverage of **5.2%gain inTimedUp and Go test**

After the trial, 82% of the seniors were happy to continue MitoCharge sessions and 78% of them were willing to recommend it to others.

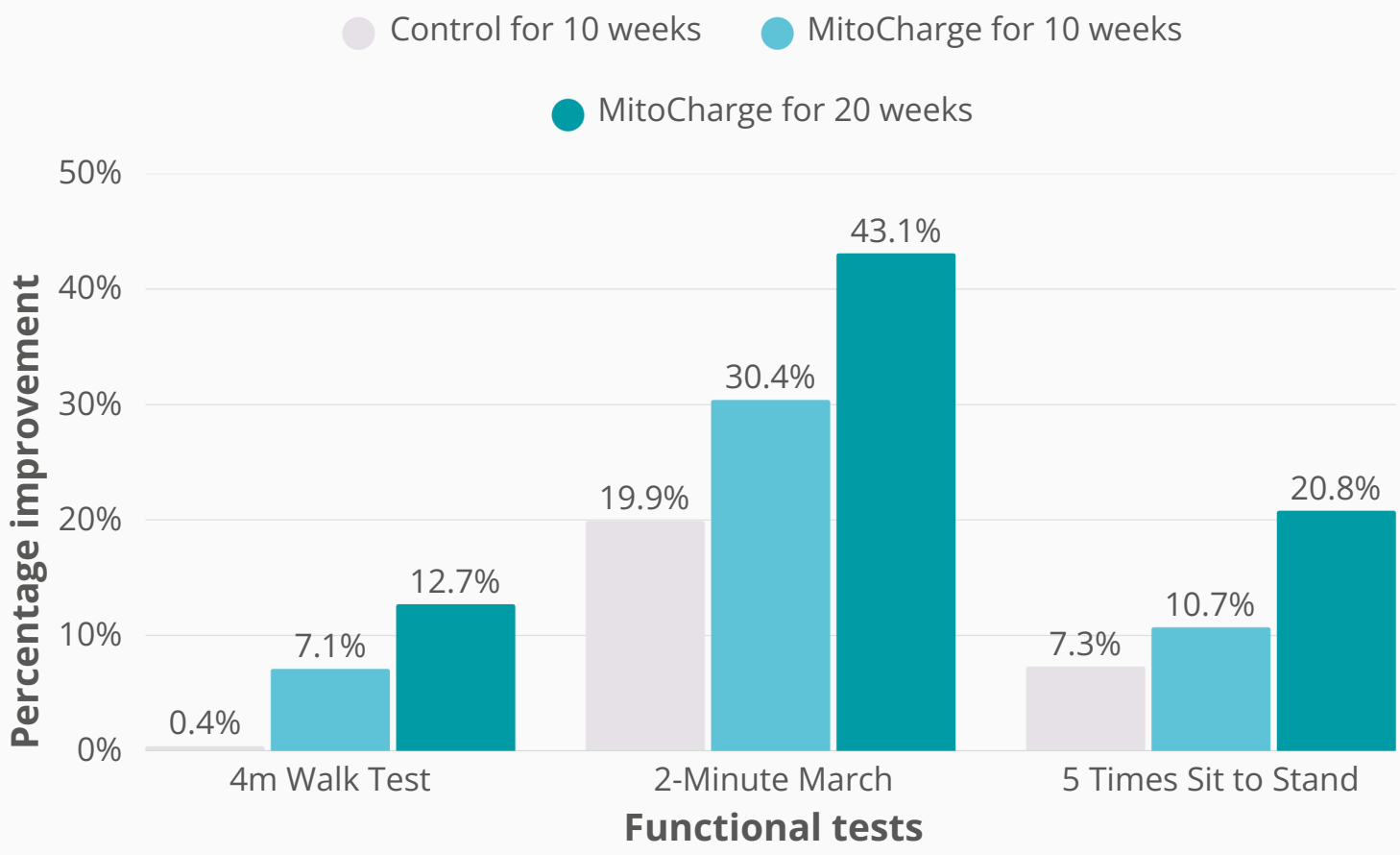
In addition, centres saw 12.5% - 25.8% productivity gains from having incorporated MitoCharge programmes, replacing manual muscle warming processes and even from an uptake of recruitment of new, and often sedentary, seniors.

2) MITOCHARGE IMPROVES FUNCTIONAL MOBILITY AND QUALITY OF LIFE IN SENIORS WITH CONTINUED GAINS SEEN OVER A LONGER 20-WEEK PERIOD OF USE

From September 2020 to February 2021, QuantumTX and Toa Payoh Care Corner (TPCC) conducted a 20-week double-blinded study involving 47 seniors (aged 60–85) to evaluate MitoCharge for elderly fitness. Participants were randomly assigned to Treatment group receiving 20 weeks of MitoCharge, or the control group receiving 10 weeks sham followed by 10 weeks of MitoCharge therapy.

Overall, seniors experienced larger gains in their functional performance with more MitoCharge sessions. At 10 weeks, the treated group performed better across all functional tests, on average scoring >50% higher than the control group. At 20 weeks, the treated group with 20 weeks of MitoCharge, had significantly larger gains than the control group (with 10 weeks of sham and 10 weeks of MitoCharge).

Notably, there was no plateauing effect observed within 20 weeks for seniors, and 20-week test scores were 40 - 90% higher than the 10-week test scores for the treated cohort.

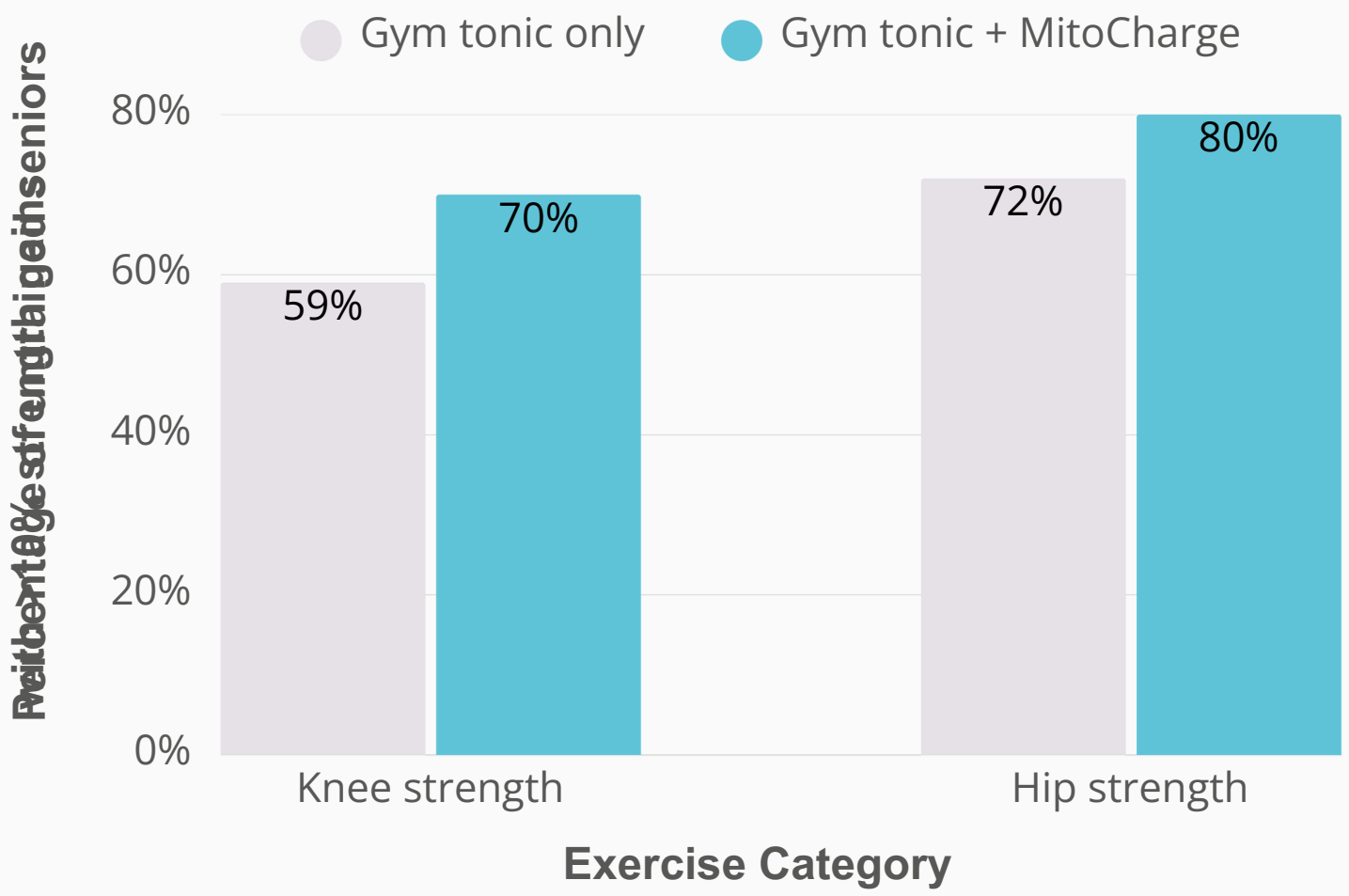


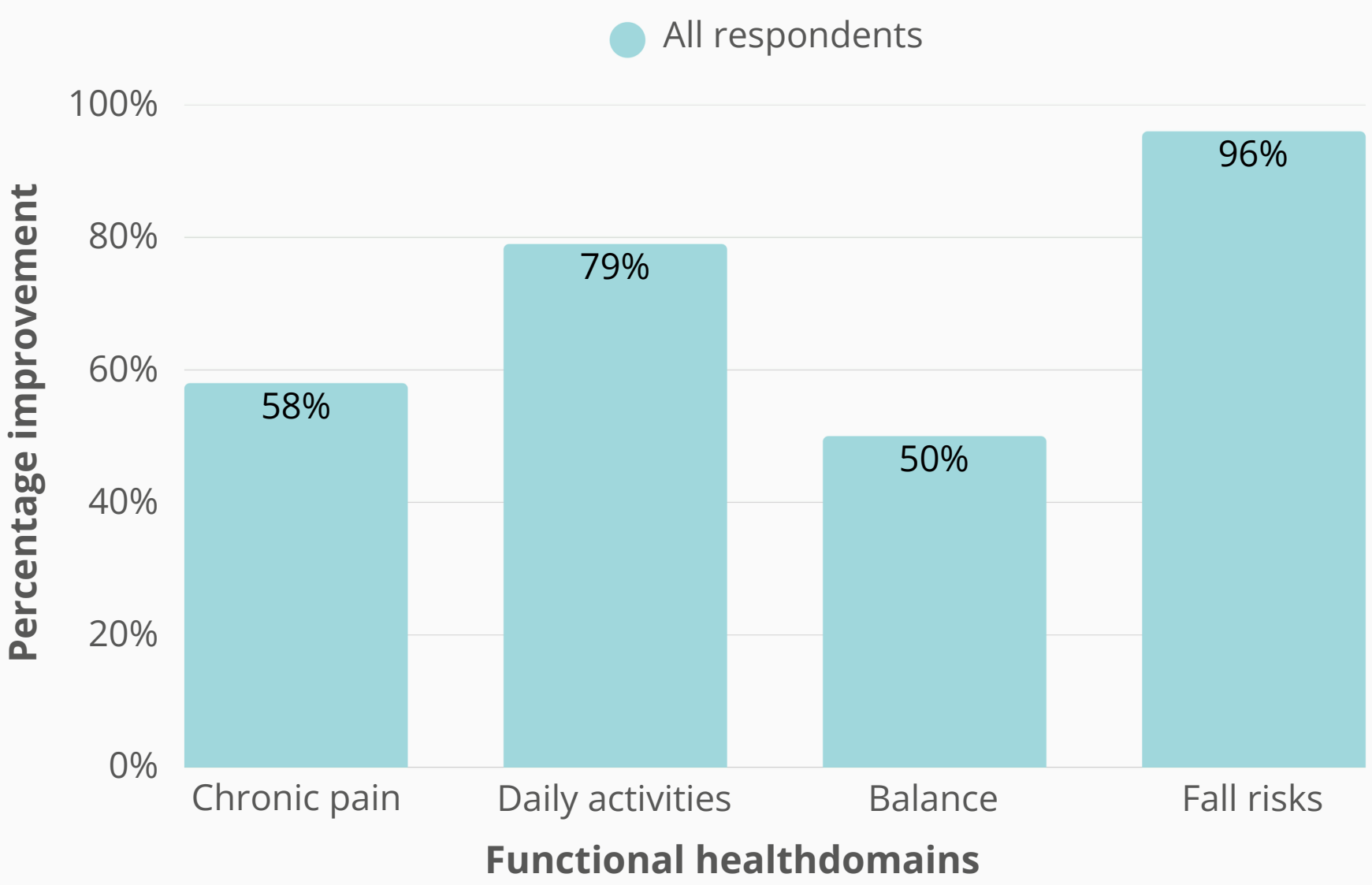
After the trial, 92% of all users reported improvements in their quality of life, and 90% of them enjoyed their weekly programme and wanted to continue MitoCharge sessions.

3) MITOCHARGE IMPROVES DAILY FUNCTION, MOBILITY AND PAIN IN SENIORS, EVEN IN THOSE WITH PRIOR GYM TRAINING

Recognizing that muscle weakness is one of the most common challenges faced by the ageing population, MitoCharge therapy aims to activate muscles passively and non-invasively without physical strain.

In 2019, a community study was performed in collaboration with Bishan Community Club Gym Tonic (BCCGT), to investigate whether the effects of MitoCharge therapy are enhanced when combined with standard resistance training. 90 seniors aged between 60 to 85 with varying levels of prior training received 10-minute sessions of MitoCharge therapy once or twice a week for 10 weeks in addition to their usual gym sessions. Additionally, pre- and post-intervention assessments were carried out to gauge improvements.





75%

of seniors reported **improvements in various health domains**

22%

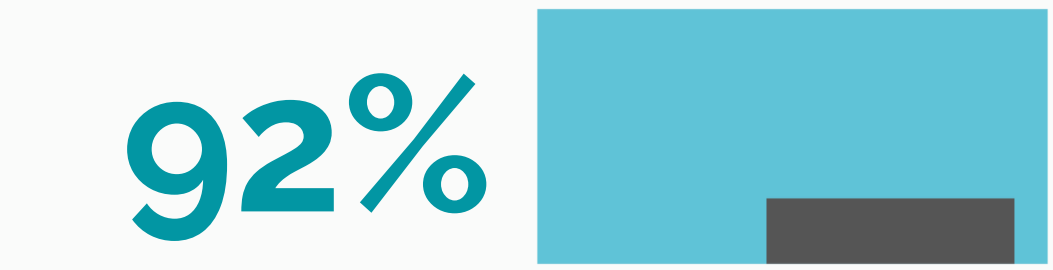
strength gain for knee and hip exercises

Overall, these results demonstrate that MitoCharge therapy allowed for greater functional capacity and pain relief across all users, regardless of their prior training status. Notably, untrained or new users had marked strength gains, while those with existing training backgrounds continued to see improvements. This highlights MitoCharge's effectiveness in supporting both functional and strength-related outcomes.

SPORTS

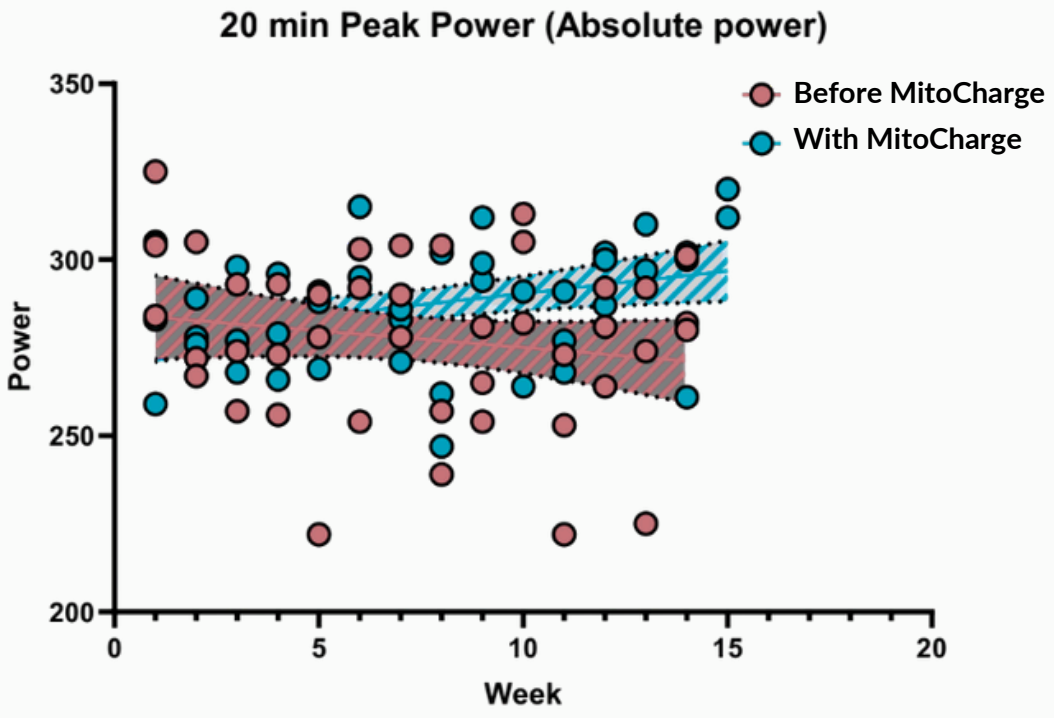
4) MITOCHARGE BOOSTS ENDURANCE PERFORMANCE AND RECOVERY IN BOTH RECREATIONAL AND PROFESSIONAL CYCLISTS WHILE REVERSING OVERTRAINING EFFECTS

In 2020, QuantumTX partnered with the Singapore Cycling Federation to conduct the MitoCharge Enhanced Performance Study, to assess how MitoCharge technology would improve the performance and training outcomes of cyclists. 12 cyclists from the Singapore Cycling Federation were recruited and underwent 12 weeks of regular MitoCharge therapy. Each cyclist received 10-minute sessions of MitoCharge muscle-activation twice a week, together with their regular training schedule. In total, 5 Professional cyclists (national representatives, aged 20 to 40) and 7 Master cyclists (non-national enthusiasts, aged 30 to 50) were recruited.



92%

of cyclists saw improvements of average **3.7%** in their **sustained power output**



Additionally, MitoCharge therapy has helped professional cyclists overcome the effects of overtraining. Analysis of their 20-minute Peak Power data over a 14- week period showed cyclists' declining performance before MitoCharge (red).

With MitoCharge, cyclists had steady gains in peak power outputs over the next 14 weeks (blue). They achieved markedly higher peak outputs, with fewer "low weeks" and consistently stronger performance.

Notably, after MitoCharge therapy, average weekly 20-minute Mean Maximum Power scores were 1.9% - 4.0% higher than before treatment.

5) REGULAR MITOCHARGE USAGE SHOWS POTENTIAL TO IMPROVE VO2MAX, AEROBIC CAPACITY AND MITOCHONDRIAL EFFICIENCY IN HEALTHY ADULTS

Studies have shown that MitoCharge therapy can lead to metabolic and functional adaptations when used with traditional exercises. In 2024, a preliminary study was carried out with 7 untrained office workers (aged 20 to 45), over an 8-week period, to evaluate the effects of MitoCharge technology on aerobic capacity. Individual VO2max (maximum power output) and aerobic threshold capacity (maximum power output from aerobic mitochondria-powered generation) was conducted at the start and end of 8 weeks using the VO2 Master device in a ramp-up test on the treadmill. Participants each received 10-minute sessions on each leg, 3 times a week over the 8 weeks.

After MitoCharge therapy, improvements were seen in various aerobic fitness matrics, indicating positive impact on participants' aerobic fitness and capacity.

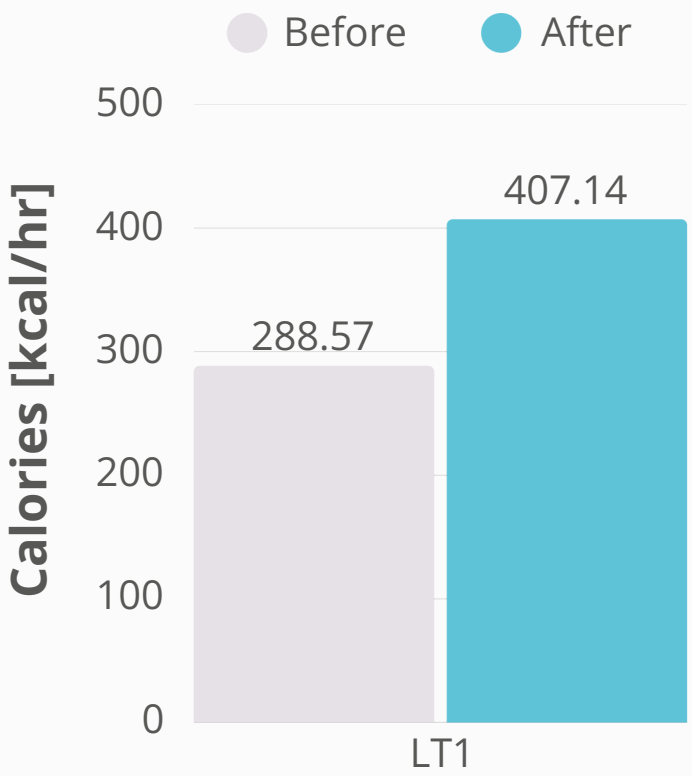
41%

increaseinlactate threshold (LT1) after 8 weeks

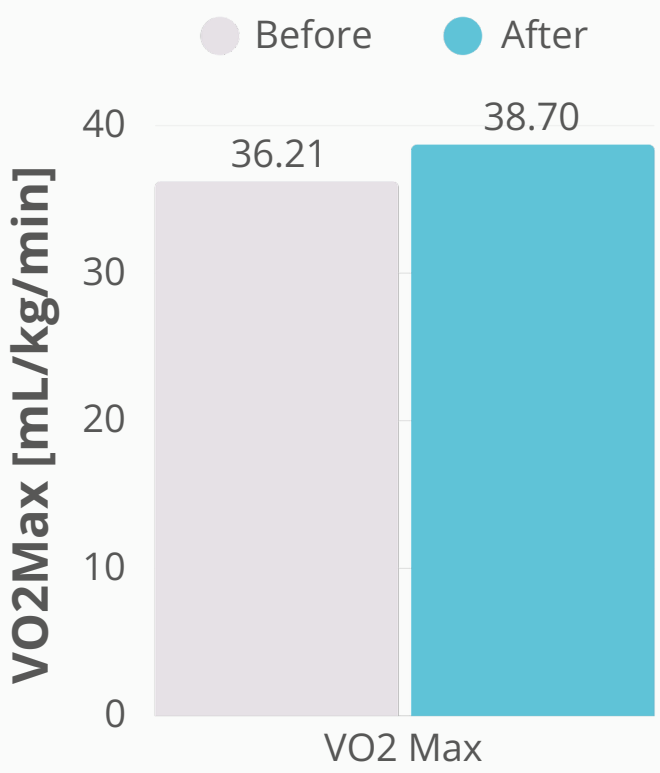
19%

increaseinventilatory threshold (VT1) after 8 weeks

- LT1 (lactate threshold 1) = the exercise intensity at which blood lactate levels rise above baseline, indicating a switch to using more anaerobic energy
- VT1 (ventilatory threshold 1) = point where the body switches from sustainable aerobic power production to rely on additional anaerobic power production
- VT2 (ventilatory threshold 2) = point at which ventilation increases sharply due to reliance on anaerobic metabolism
- VO2 max (maximal oxygen consumption) = measure of total aerobic and anaerobic fitness and how much oxygen your body consumes at maximum power output



- **+41% increase in LT1** caloric expenditure indicates delayed fatigue onset and greater aerobic capacity



- **+6.9% increase in VO2max** shows improved total performance after improving aerobic base

- **+19% increase in VT1** caloric expenditure indicates better oxygen utilisation and endurance at moderate intensities

- **+4% increase in VT2** caloric expenditure indicates more sustained high-intensity performance

Overall, the findings indicate that MitoCharge positively impacts endurance, aerobic capacity and the enhancement of slow-twitch muscle fibres as supported by observed improvements in VT1 and LT1. These outcomes suggest better metabolic efficiency and aerobic fitness, likely due to MitoCharge's activation of mitochondrial function and promotion of oxidative muscle recruitment. By stimulating energy pathways and muscle fiber types typically engaged during moderate-intensity exercise, MitoCharge mimics the physiological effects of Zone 2 training without physical strain on the body.

4 Conclusion

1 AGEING QUALITY OF LIFE

MitoCharge therapy has been shown to improve functional mobility and quality of life in seniors, supporting greater ease in performing daily activities.

2 CHRONIC DISEASE MANAGEMENT

MitoCharge therapy helps delay the effects of ageing by reducing muscle atrophy, relieving pain, and improving overall muscle strength and function.

3 METABOLIC HEALTH

MitoCharge enhances metabolic function by stimulating mitochondrial activity, facilitating the reduction of total and visceral fat, while supporting management of metabolic diseases such as diabetes.

4 SYSTEMIC HEALTH IMPROVEMENTS

MitoCharge therapy promotes the release of myokines that circulate throughout the body, playing a vital role in reducing inflammation, supporting muscle regeneration, and enhancing metabolic regulation.

5 SPORTS PERFORMANCE AND RECOVERY

MitoCharge enhances muscle energetics and aerobic capacity, supporting improved endurance, faster recovery between training sessions, and sustained athletic performance.

REFERENCES

No.	Publication	Description
1	Aging (Albany NY), 2023	Regular MitoCharge treatment effected exercise-related adaptations amongst users, improving users' mobility, body composition and reducing pains.
2	Frontiers in Medicine, 2024	Additional MitoCharge sessions on top of standard home-exercise significantly improves knee strength and pain relief outcomes in late-stage knee osteoarthritis patients.
3	Journal of Cachexia, Sarcopenia and Muscle, 2026	MitoCharge sessions drive sustained gains in knee strength beyond active treatment period in mild to moderate knee osteoarthritis patients.
4	Orthopaedic Journal of Sports Medicine, 2024	MitoCharge enhanced pain relief, tendon healing and sports participation for Achilles tendinopathy patients, with strongest effects in patients with midportion tendinopathy.
5	Journal of Orthopaedic Translation, 2022	16 weeks of MitoCharge treatment after knee-repair surgery enhanced patients' muscle energetics, reduced deconditioning leading to enhanced post-surgical recovery.
6	Cells, 2025	MitoCharge activation increases anti-cancer myokine release, potentially assisting in cancer survivorship outcomes.
7	Journal of Clinical Medicine, 2025	MitoCharge activation improves glycaemic control and insulin resistance in T2DM patients with central obesity.

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