10TH MEDICAL RESEARCH SYMPOSIUM 2026

# 10TH INTERNATIONAL VIRTUAL MEDICAL RESEARCH SYMPOSIUM 2026

## ETHICAL RESEARCHER IN THE AI ERA

# ABSTRACT BOOK

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3RD FEBRUARY 2026

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4TH FEBRUARY 2026

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**NC-P1**

# Elucidating Cellular Mechanisms of Tissue Regeneration: Insight from Zebrafish Larvae model and Hypertonic Dextrose Prolotherapy

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## ABSTRACT

**Introduction:** Dextrose prolotherapy is a regenerative intervention widely practiced in musculoskeletal conditions such as knee osteoarthritis, tendinopathies, ligament injuries, and muscle injuries. It involves the injection of hypertonic dextrose to stimulate tissue healing. This study aimed to investigate the effects of different dextrose concentrations and double exposure on regeneration of the amputated zebrafish (Danio rerio) tail, with the objective of informing clinical practice. **Materials and method:** Zebrafish larvae tail was amputated and was exposed to different concentration of dextrose (3.125%, 6.25%, 12.5%, 25%) for 5 minutes. The tail regeneration was evaluated at 24, 48 and 72 hours post amputation by using calibrated ImageJ software. The second experiment explored the effect of regeneration after exposed the zebrafish larvae twice in dextrose (6.125%, 12.5%) at a 10 minute interval. Data were analysed using one-way ANOVA to determine significant difference between groups. **Results:** In the first experiment, 12.5% dextrose consistently showed highest regeneration at 24 and 48 hours post amputation. In the second experiment 6.25% dextrose demonstrated the highest regeneration suggesting efficacy with double exposure. However for 12.5% dextrose with double exposure, the regeneration is slower. It could be due to concentration dependent toxicity. **Conclusion:** Dextrose Prolotherapy treatment can stimulate and enhance tissue regeneration in injured tissue with moderate concentration and multiple exposure. These finding provide an insight on the biological effects of dextrose prolotherapy treatment, support its potential clinically and guide in optimising the treatment protocol.

**Keywords:** Dextrose prolotherapy