

PRIMARY AND PERMANENT TEETH PULP STEM CELLS - BIOLOGICAL CHARACTERISTICS AND THERAPEUTIC INDICATIONS

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Stem cell research has opened new avenues in regenerative medicine, offering promising solutions for tissue restoration and regeneration. Among the various sources of stem cells, dental pulp has emerged as a rich reservoir of mesenchymal stem cells (MSCs) with remarkable regenerative potential. Pulp stem cells derived from primary and permanent teeth have attracted attention due to their unique biological properties and clinical applications. Primary teeth, despite being temporary structures, contain a rich source of MSCs during early childhood development, while permanent teeth provide a more abundant and accessible reserve of stem cells during adulthood.

The aim of this paper is to investigate the biological characteristics and therapeutic potential of pulp stem cells derived from primary and permanent teeth. Stem cells extracted from the dental pulp represent a significant interest in regenerative medicine due to their unique properties and accessibility. Through a comprehensive review of the existing literature and empirical research, this paper aims to clarify the different qualities of pulp stem cells from both primary and permanent teeth, exploring their regenerative capacities and therapeutic indications. By evaluating their potential for differentiation, immunomodulatory effects and clinical applications, this thesis provides valuable insights into the use of dental pulp stem cells for tissue and regenerative therapies. For the realization of this paper, we compiled a survey questionnaire that contained several questions for the respondents.

According to the data obtained from a total of 100 respondents, of whom 53 were female and 47 were male. Of the male population, 47, 17 were medically educated, 30 were medically uneducated. We obtained data that most of them are not familiar with the procedure. Women are more susceptible with 53%. Despite the significant therapeutic potential of stem cells dental pulp cells, several challenges remain to be overcome to fully realize their clinical potential and maximize their impact in regenerative medicine. The application of dental pulp stem cell-based therapies from preclinical research to clinical applications requires rigorous validation of their safety, efficacy, and scalability in clinical trials. Collaborative efforts between researchers, clinicians, regulators, and industry partners are essential to navigate regulatory pathways, secure funding, and advance dental pulp stem cell-based therapies toward clinical adoption.