

PENGARUH LATIHAN FISIK INTENSITAS SEDANG TERHADAP EKSPRESI VASCULAR ENDOTHELIAL GROWTH FACTORS (VEGF) PADA PROSES PENYEMBUHAN LUKA PENCABUTAN GIGI TIKUS WISTAR (*Rattus norvegicus*)

EFFECT OF MODERATE INTENSITY PHYSICAL EXERCISE ON VASCULAR ENDOTHELIAL GROWTH FACTORS (VEGF) EXPRESSION DURING THE WOUND HEALING PROCESS OF WISTAR RATS' (*Rattus norvegicus*) TOOTH SOCKET POST-EXTRACTION

ABSTRACT

Background: Tooth extraction is a common procedure in dentistry where the extraction procedure will result in a relatively large wound. Most wounds are expected to heal properly, but complications such as infections, prolonged bleeding, and swelling might occur. Proper wound healing process is needed to restore the normal function of our tissues. Certain cells, such as macrophages are present during the inflammatory phase of the wound healing process. Involvement of macrophage, and its differentiation is critical to making a wound heal faster. Vascular endothelial growth factors (VEGF) is one of many growth factors that can accelerate angiogenesis and is secreted by many inflammatory cells, including macrophages. During angiogenesis, VEGF is bonded with receptors in endothelial cells. Moderate intensity physical exercise can improve the efficiency of macrophage function by making it secrete more VEGF into the wound tissue, which in turn will make the wound healing process much faster. **Methods:** Wistar rats (*Rattus norvegicus*) were divided into 2 groups, one is the control group and the other one is the treatment group. The treatment group was given moderate intensity physical exercise for 2 weeks (swim test). The number of VEGF expression was observed on macrophages three days after tooth extraction. The data was then analyzed statistically using an independent t-test. **Results:** The treatment group shows a higher average of VEGF expression and the data shows a significant difference. **Conclusion:** Moderate intensity physical exercise can significantly increase the expression of VEGF during wound healing process in Wistar rats (*Rattus norvegicus*).

Keyword: Moderate intensity physical exercise, macrophage, VEGF, wound healing