

ABSTRACT
PROCEEDINGS

**THE 31ST INTERNATIONAL SYMPOSIUM OF
PHYSIOLOGY FOR HEALTH IN LAMPUNG**

*"International Symposium on Physiology
for Health in Lampung"*

Swiss-BelHotel, Lampung
October 10-11, 2024



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PROCEEDINGS

**THE 31ST INTERNATIONAL SYMPOSIUM ON PHYSIOLOGY FOR
HEALTH IN LAMPUNG**

"Integrated Physiology for Global Health Resilience"

Swiss-Belhotel Lampung, October 10-11, 2024



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Abstract Proceedings
The 31st International Symposium on Physiology for Health in Lampung
Volume 1, No. 1, October 2024

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Abstract Proceedings

The 31st International Symposium on Physiology for Health in Lampung

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Electrochemical Disinfection of *Escherichia Coli* in Hospital Wastewater

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Abstract

This research was conducted to study the use of electrochemical treatment for disinfection of *Escherichia coli* (*E-coli*) in hospital wastewater, with the main purpose to evaluate the effect of electrochemical potentials and contact time. A series of experiments were carried out in an electrochemical reactor with two graphite rods as cathode and two aluminum rods as anode. With respect to the purpose of the study, experiments were conducted by applying varied electrochemical potentials of 5, 10, and 15 Volts and contact times of 30, 60, 90, and 120 minutes. The experimental results showed that both potential and contact time have significant effect, and 97.6% percent of the *E-coli* was successfully inactivated by using a potential of 15 volts and contact time of 120 minutes. This performance implies that electrochemical disinfection has a promising potential as an alternative to chemical disinfection, which remains as the main methods applied today.

Keywords: Hospital waste water, *Esherichia coli*, electrochemical disinfection, potential, contact time.

The Role of Tahajjud Prayer on Cognitive Function in Young Adults

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Abstract

Purpose: Knowing the effect of tahajjud prayer on cognitive function in young adults

Methodology/approach: Quantitative research with a pretest and posttest experimental research design without control, with a research sample of young adults, was carried out, to measure cognitive function with the MMSE, sample size 30.

Results/findings: There is a significant difference in the level of cognitive impairment between before being given the intervention and after being given the Tahajjud prayer intervention with P value = 0.001

Limitations: The data collection process requires examination up to the biomeluker stage to see more clearly the physiological processes

Contribution: provide an impact on young adults to improve cognitive function by praying Tahajud regularly and continuously

Keywords: *Tahajud prayer, Cognitive Function*

Influence of Food Glycemic Index on Cardiorespiratory Endurance ($\dot{V}O_2\text{max}$) in Sport Performance : A Scoping Review

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Abstract

$\dot{V}O_2\text{max}$ is the body's ability to take up, transport, and use oxygen during intense physical activity. A maximal $\dot{V}O_2\text{max}$ can enhance performance during exercise. One factor influencing $\dot{V}O_2\text{max}$ is the availability of energy in the body, with carbohydrates and fats serving as the primary energy sources during sports activities. Athletes often consume carbohydrates before exercising to provide energy and maintain muscle glycogen reserves. Carbohydrate foods' glycemic index (GI) can affect metabolic efficiency and athletic performance. This scoping review aims to map and evaluate the existing literature on the effect of dietary glycemic index on $\dot{V}O_2\text{max}$ in people with sports activities and provide insights that can guide nutritional strategies to improve aerobic performance. This review follows the Arksey and O'Malley framework and reviews research findings using the PRISMA Scr (Priority Reporting Items for Systematic Review Meta-analysis Extension for Scoping Reviews) framework. Five electronic databases were systematically searched, including PubMed, PMC, ScienceDirect, Google, and Google Scholar. Studies published in English after 2014 were eligible for selection. Eligibility criteria focused on experimental studies. Data were obtained and mapped based on relevant variables such as study design, type of intervention, and outcomes. Glycemic index levels of various foods contribute to $\dot{V}O_2\text{max}$. Consumption of foods with a low glycemic index can increase $\dot{V}O_2\text{max}$ in sports participants. This finding provides important insights for developing appropriate nutritional strategies for athletes to improve performance during sports.

Keywords: *Glycemic Index; $\dot{V}O_2\text{max}$; Sport Performance.*

***Ficus Carica* Prevents Oxidative Stress in Kidney Rats Induced by Chronic Intermittent Hypoxia**

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Abstract

Purpose: This study aims to determine puree of *Ficus carica* (PFC) as a source of exogenous antioxidants in protecting the kidneys of rats induced by chronic intermittent hypoxia (CIH)

Methodology/approach: Rats induced by CIH a 4-hour hypoxia cycle in hypoxia chambers (10% oxygen and 90% nitrogen) and puree *Ficus carica* (PFC) administration. Twenty-four *Sprague-Dawley* rats were randomized into 6 groups (n=4): neutral control (NC) group, chronic intermittent hypoxia (CIH) group, CIH and vitamin E (CIH-E) group, and three PFC intervention groups with different doses (CIHF-1.25; CIHF-2.5; CIHF 5.0) ml/200gBW/d. Serum urea, creatinine levels, Malondialdehyde (MDA), and superoxide dismutase (SOD) levels of the kidney were assessed.

Results/findings: The levels of MDA, SOD, and SOD/MDA ratio of the kidney showed significant differences in the CIHF-5.0 group compared to the negative control. Urea serum was lower in the CIHF-5,0 group and creatinine serum in the CIHF 2,5 group. Urea and creatinine serum had a significant difference compared to the negative control group.

Limitations: This study did not explore the specific bioactive compounds in *Ficus carica* that can influence several parameters in the kidney. In general, this study showed that *Ficus carica* intervention was better than administering Vitamin E.

Contribution: This study contributes to the development of science, particularly preventative medicine, by employing antioxidant chemicals in *Ficus carica* to mitigate the effects of chronic hypoxia.

Novelty: There has never been any research into the use of functional foods derived from *Ficus carica* to alleviate the effects of chronic hypoxia on the kidney organ.

Keywords: *Ficus carica*, chronic intermittent hypoxia, kidney, oxidative stress

Exploring The Benefits of Regular Exercise on Frailty Syndrome in The Elderly

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Abstract

Purpose: We aimed to investigate the impact of regular exercise on frailty syndrome in elderly adults, by comparing those who engage in physical activity at least twice a week for 30-45 minutes with those who do not.

Methodology: This study was conducted in a rural area of West Sumatra Province, Indonesia, in September 2022. This research involved 22 participants aged 68.09 ± 4.76 years. The participants were equally divided into two groups: those who engaged in specific exercises such as brisk walking, light aerobics, and stretching at least twice a week for 30-45 minutes ($n=11$), and those who did not engage in any structured physical activity ($n=11$). Frailty syndrome was assessed using the FRAIL questionnaire in Bahasa, a validated tool for evaluating frailty in the Indonesian elderly. Statistical analyses were conducted using STATA Ver.16 software.

Results/findings: The results indicated that elderly individuals participating in regular exercise exhibited a significantly lower prevalence of frail syndrome compared to sedentary individuals (0% vs 36.36%, $p=0.027$), suggesting that physical activity may mitigate frailty risk.

Limitations: Our study was limited by its small sample size and the specific demographic of a rural setting, potentially affecting generalizability. Additionally, the cross-sectional design restricted causal inferences about exercise and frailty.

Contribution: Our study emphasized the significance of regular exercise in mitigating frailty syndrome among elderly adults. Healthcare practitioners should recommend physical activity as a preventive measure, while policymakers should prioritize developing exercise interventions, including community-based programs, to improve the quality of life for the elderly.

Novelty: The novelty of this study lies in its focus on a rural elderly population in West Sumatra, using a culturally validated frailty assessment and demonstrating that regular exercise significantly reduces frailty risk.

Keywords: *aging, exercise, frail, physical activity, rural population*

The Effect of Sleep Quality on Students Mental Health: A Literature Review

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Abstract

A global health problem experienced by someone when their body does not get enough hours of sleep is poor sleep quality. Many factors can cause sleep quality to decrease in students. This indicates that this problem requires an effort to improve sleep quality to reduce mental or physical health problems. The aim of this research was to determine the extent of the causal relationship between insufficient hours of sleep and poor mental health. This type of research is a literature review using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) method. The articles to be analyzed have a publication year range from 2018 to 2023. The databases used to collect articles are Google Scholar and PubMed with the keywords "perception", "sleep quality", "mental health" and "students". Researchers found 750 articles which were then included to become 7 relevant articles. From these 7 articles, it can be seen that students do not fully know about the recommended quality of sleep and the importance of quality sleep to support daily activities. This research found that sleep quality is determined by physical activity. These results become a reference for the study and direction in conducting further research to intervene in sleep hours.

Keywords: *perception, sleep quality, mental health*

Physiological Responses of Fisheries Farmer

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Abstract

Purpose: The purpose of this study was to determine the physiological response of fisheries farmer to the siphoning process with part of the worker's body submerged in water.

Methodology/approach: The research method used in this study is Structural Literature Review in the form of analyzing and classifying facts collected in research conducted related to the physiological responses of the body in fisheries farmer sourced from Google Scholar and PubMed.

Results/findings: The results obtained were that there were several physiological responses fisheries farmer to the worker's body which could have an impact on the quality of the worker's health.

Limitations: The limitation of this research is that the topic taken is only about the physiological responses of the bodies of fisheries farmer.

Contribution: This study is expected to contribute to fish farming workers and the general public in maintaining the quality of health.

Keywords: *responses physiological, healthy worker, fisheries farmer*

Screen Time and Computer Vision Syndrome Among Medical Students During The COVID-19 Pandemic

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Abstract

Purpose: This study was conducted to determine the relationship between screen time, one of the risk factors for computer vision syndrome (CVS), and the severity of CVS.

Methodology/approach: A cross-sectional study with 98 respondents, 17-21 years old, using the Modified Computer Vision Syndrome Questionnaire in Bahasa and application to record the screen time (Screen Time – Restrain Yourself & Parental Control Versi 1.3.3 (Ez Life Inc.), Screen Time Build In Apple, Timecamp). Data were analyzed using the chi-square test with a value sign significance $p < 0,05$.

Results/findings: The average device usage duration was 10 hours and 10 minutes daily. Seventy percent of respondents used gadgets with a screen time of $>8,9$ hours daily. The prevalence of CVS was 47,9%, with 25,5% of respondents experiencing mild symptoms of CVS and 22,4% experiencing moderate to severe symptoms of CVS. The association between screen time and CVS was proven significantly by chi-square analysis ($p < 0,05$).

Limitations: recall bias is possible when filling out the questionnaire in the last 1 week, and the researcher still cannot directly observe the actual state of the respondent's device use.

Contribution: Education is needed to reduce the duration of device use.

Keywords: *computer vision syndrome, COVID-19 pandemic, medical students, screen time*