

International Conference on
**Bridging Conventional and Alternative Health Care Practices:
Innovative Futuristic Approach**



Manav Rachna International Institute of Research and Studies



Welcome Address by the Vice Chancellor, MRIIRS

Esteemed Dignitaries, Guests, Eminent Scholars, and Distinguished Delegates,

It is with immense Pride and Profound pleasure that I welcome you all to the International Conference on Bridging Conventional and Alternative Healthcare Practices: An Innovative Futuristic Approach at Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad.

समदोषः समाग्निश्च समधातुमलक्रियः ।
प्रसन्नात्मेन्द्रियमनाः स्वस्थ इत्यभिधीयते ॥

A person is truly healthy when his doshas (Vata, Pitta, and Kapha), agni (digestive fire), and bodily functions are balanced, and when their mind, senses, and soul are in a state of harmony and happiness.

This ancient wisdom reminds us that health is a state of complete balance - something that no single system of medicine can achieve alone. Integration is the key, and this conference stands as a testament to our collective commitment to advancing research, innovation, and collaboration in healthcare. By bringing together experts from diverse disciplines, we aim to foster meaningful discussions on the synergy between conventional medicine and holistic healing approaches.

As we navigate the evolving landscape of healthcare, this platform offers an invaluable opportunity to share knowledge, exchange ideas, and explore groundbreaking strategies that bridge traditional and modern medical practices for a healthier, more sustainable future.

I extend my heartfelt appreciation to the distinguished speakers, researchers, and participants who have gathered here from across the world. Your insights and expertise will not only enrich the academic discourse but also inspire transformative ideas that will shape the future of integrative healthcare.

At MRIIRS, we firmly believe in the power of education, research, and innovation to drive change. As we embark on this journey of exploration and knowledge exchange, I encourage each of you to actively engage, forge new connections, and contribute to a shared vision of more holistic and futuristic healthcare ecosystem.

Wishing you all a productive and enriching experience at this conference!!!

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25.2.25

Prof. (Dr.) Sanay Srivastava
Vice Chancellor
Manav Rachna International Institute of Research and Studies

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES

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Address by the keynote Speaker



Dr. Sarath Gopalan

Senior Consultant, Madhukar Rainbow Children's Hospital

National President, Nutrition Society of India

It is an honor and a privilege to stand before you today as the keynote speaker at this prestigious **International Conference on Bridging Conventional and Alternative Health Care Practices: Innovative Futuristic Approach** here at **Manav Rachna International Institute of Research and Studies**. I extend my heartfelt gratitude to the organizers for bringing together such a distinguished gathering of thought leaders, researchers, and practitioners from diverse domains of health care.

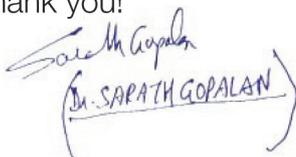
Health care today stands at a critical juncture, where integrating conventional and alternative practices is not just a possibility but a necessity. The synergy between modern medical advancements and time-tested traditional therapies holds immense potential in transforming patient care, enhancing well-being, and paving the way for a more holistic and sustainable health system.

Over the next two days, we will engage in insightful discussions, share pioneering research, and explore innovative strategies that will shape the future of integrative health care. This conference is a platform to foster collaboration, inspire new ideas, and work towards a comprehensive and inclusive approach to health and wellness.

I encourage each of you to actively participate, exchange knowledge, and forge meaningful partnerships that will contribute to the evolution of health care globally. Together, let us embark on this journey of discovery and innovation to build a future where conventional and alternative healthcare practices complement each other seamlessly for the greater good of humanity.

Once again, I extend my warmest welcome to all of you, and I look forward to an enriching and productive conference.

Thank you!


(Dr. SARATH GOPALAN)



Welcome Address by Dean, School of Health and Allied Sciences

Esteemed Delegates, Distinguished Guests, Respected Colleagues, and Dear Students,

It is with immense pleasure and great honor that I welcome you all to the **International Conference on Bridging Conventional and Alternative Healthcare Practices: An Innovative Futuristic Approach**, hosted by **Manav Rachna International Institute of Research and Studies (MRIIRS)**, Faridabad, Haryana, on the **27th and 28th of February 2025**.

Healthcare is at a transformative crossroads, where conventional medical practices and alternative healing approaches are converging to create holistic, patient-centered solutions. This conference serves as a vibrant platform for academicians, researchers, healthcare professionals, and industry experts to engage in meaningful discussions, share pioneering research, and explore groundbreaking advancements that will shape the future of healthcare.

At MRIIRS, we strongly believe in fostering innovation, collaboration, and interdisciplinary approaches in healthcare. This event embodies our commitment to bridging the gap between evidence-based conventional medicine and the rich, time-honored wisdom of alternative therapies, paving the way for integrative and personalized healthcare solutions.

I extend my heartfelt gratitude to all the eminent speakers, delegates, and participants who have traveled from across the globe to contribute their insights and expertise. Your presence enriches this conference, and I am confident that the discussions over the next two days will inspire new perspectives, drive innovation, and strengthen collaborations for a healthier future.

Once again, I welcome you all to this intellectually stimulating and thought-provoking event. Wishing you an enriching and fruitful experience at MRIIRS.

Dr. Puneet Batra
Dean, School of Health and Allied Sciences
Pro Vice Chancellor (Health Sciences)
Manav Rachna International Institute of Research and Studies

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25.02.2025

MESSAGE

It is with great pleasure that I extend my warmest greetings to all the distinguished speakers, delegates, and participants of the **International Conference on Bridging Conventional and Alternative Healthcare Practices: Innovative Futuristic Approach**.



In today's rapidly evolving healthcare landscape, the integration of conventional medicine with alternative and complementary therapies presents a promising pathway toward holistic, patient-centered care. I was informed that this conference will serve as platform for global experts, researchers, and practitioners to exchange knowledge, explore innovative methodologies, and forge collaborations which will shape the future of healthcare.

The convergence of evidence-based modern medicine with time-tested traditional and alternative practices holds immense potential in addressing the diverse health challenges of our time. By fostering dialogue and research in this interdisciplinary domain, we take a significant step toward building a more inclusive, effective, and sustainable healthcare system.

I extend my heartfelt appreciation to the organizers, contributors, and participants for their dedication and enthusiasm in making this conference a success. May this gathering inspire new ideas, strengthen partnerships, and cover the way for ground breaking advancements in healthcare.

Wishing everyone a fruitful and enriching experience!

Prof. Narpinder Singh

FRSC, FAACC, FNA, FNAsc, FNAAS, FAFST(I), FPAS

Vice Chancellor



सत्यमेव जयते

आयुष मंत्रालय
भारत सरकार

मोरारजी देसाई राष्ट्रीय योग संस्थान MORARJI DESAI NATIONAL INSTITUTE OF YOGA

आयुष मंत्रालय, भारत सरकार
MINISTRY OF AYUSH, GOVERNMENT OF INDIA६८, अशोक रोड, नई दिल्ली - ११०००१
68, ASHOKA ROAD, NEW DELHI-110001

डॉ. काशीनाथ समगण्डी, बी.ए.एम.एस., एम.डी, पीएच.डी.
DR. KASHINATH SAMAGANDI, B.A.M.S., M.D. Ph.D.
निदेशक/DIRECTOR

Welcome Address by Key Note Speaker

International Conference on Bridging conventional and Alternative Healthcare Practices: Innovative Futuristic Approach

Manav Rachna International Institute of Research and Studies, Faridabad, Haryana
27th-28th February 2025

Honorable Dignitaries, Distinguished Guests, Respected Faculty Members, Researchers, Practitioners, and Dear Students,

It is my immense pleasure and privilege to extend a warm welcome to all of you at this prestigious **International Conference on Bridging Conventional and Alternative Healthcare Practices: Innovative Futuristic Approach** here at Manav Rachna International Institute of Research and Studies, Faridabad.

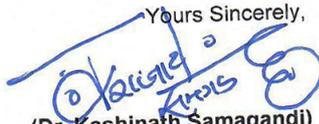
Healthcare is at a transformative crossroads, where traditional wisdom and modern scientific advancements are converging to offer holistic and effective solutions for the well-being of humanity. This conference stands as a testament to the growing need for interdisciplinary collaboration in healthcare, bringing together researchers, medical professionals, academicians, and industry experts from around the world.

Over the next two days, we will witness insightful discussions, groundbreaking research presentations, and innovative approaches that aim to integrate **conventional medicine with alternative healthcare practices**. From **Ayurveda, Yoga, Naturopathy, Homeopathy, and Traditional Chinese Medicine** to **cutting-edge technological advancements in modern medicine**, this platform will foster a **synergistic dialogue** that can reshape the future of global healthcare.

I congratulate **Manav Rachna International Institute of Research and Studies** for organizing this impactful event and providing an opportunity for intellectual exchange and collaboration. May this conference serve as a catalyst for innovative breakthroughs, policy recommendations, and meaningful partnerships that will bridge gaps in healthcare and make quality medical solutions accessible to all.

Once again, I extend my heartfelt greetings to all the esteemed participants and wish this conference great success. Let us work together towards a healthier and brighter future!

With Regards,

Yours Sincerely,

(Dr. Kashinath Samagandi)

आज़ादी का
अमृत महोत्सव

जून २१ - अंतर्राष्ट्रीय योग दिवस

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June 21- International Day of Yoga





Welcome Address by the President, MRIIRS



Distinguished Delegates, Esteemed Guests, and Respected Scholars,

It is a great honour and privilege to welcome you all to the ***International Conference on Bridging Conventional and Alternative Healthcare Practices: An Innovative Futuristic Approach***, hosted by the **Manav Rachna International Institute of Research and Studies**.

This conference serves as a pivotal platform for bringing together experts, researchers, and practitioners from around the world to engage in meaningful discussions on integrating conventional medical science with alternative healthcare systems. In today's rapidly evolving healthcare landscape, **patient-centric care** is the key to ensuring **last-mile healthcare access**. The integration of conventional and traditional medical practices offers a promising pathway to achieving this goal, fostering a more holistic and effective approach to patient well-being.

Over the next two days, we anticipate thought-provoking discussions, groundbreaking research presentations, and collaborative exchanges that will contribute to a more inclusive, innovative, and sustainable healthcare ecosystem. I encourage each of you to actively participate, share insights, and forge meaningful connections that will drive impactful advancements in global healthcare.

I extend my heartfelt gratitude to our esteemed speakers, panelists, participants, and the dedicated organizing team for their invaluable efforts in making this conference a resounding success.

Wishing you all an inspiring, enriching, and productive conference!

Warm regards,
Address

Dr. Prashant Bhalla
President
Manav Rachna International Institute of Research and Studies

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Welcome Address by the Vice President, MRIIRS



Respected Dignitaries, Distinguished Guests, Eminent Scholars, and Esteemed Delegates,

It is with immense pleasure and great honor that I extend a warm welcome to each one of you to the *International Conference on Bridging Conventional and Alternative Healthcare Practices: An Innovative Futuristic Approach*, hosted by Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad.

At MRIIRS, we are deeply committed to fostering a culture of research, innovation, and collaboration. This conference provides a dynamic platform to explore the synergy between conventional and alternative healthcare practices, with the vision of shaping the future of medical science and holistic well-being. **To truly advance patient care, we must adopt an open-minded approach and, guided by scientific evidence, work towards developing an integrated healthcare system. Now is the time to think globally and act locally, ensuring that innovative, evidence-based solutions are accessible and effective at the grassroots level.**

As we gather here, we look forward to engaging discussions, pioneering research presentations, and forward-thinking strategies that will redefine healthcare paradigms. I extend my deepest appreciation to our distinguished speakers, experts, and delegates who have joined us from across the globe to share their invaluable insights. Your presence enriches this academic endeavour, and we are eager to witness the transformative exchange of knowledge and ideas that will emerge from this conference.

May this event pave the way for new collaborations, ground breaking innovations, and impactful solutions that contribute to a healthier and more sustainable future. Wishing you all a productive, insightful, and enriching experience over the next two days.

Welcome once again to MRIIRS!

Prof. (Dr.) Amit Bhalla

Vice President

Manav Rachna International Institute of Research and Studies

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Genetic Factors Induced Immune Response in Inflammatory Bowel Disease

HESINAM DAVID SINGH¹, MYTHILY SUBRAMANEYAN²

ABSTRACT

Introduction: Inflammatory Bowel Disease (IBD), a chronic condition marked by inflammation in the gastrointestinal tract, arises from a multifaceted interaction between genetic predispositions, alterations in the gut microbiota, and immune system dysfunction. The global prevalence of IBD has increased significantly with a rising incidence in developing countries like India. Key genetic loci, such as Nucleotide-binding Oligomerisation Domain-Containing Protein 2 (NOD2), Interleukin-23 Receptor (IL23R), and Autophagy related 16 Like 1 (ATG16L1), play significant roles in increasing disease susceptibility by emphasising the critical influence of host immune regulation.

Aim: Despite substantial research, the exact causes of IBD remain poorly understood. The purpose of this comprehensive analysis is to systematically explore the genetic factors triggering immune response IBD.

Materials and Methods: The search strategy in the databases-PubMed, Scopus, Google Scholar, Web of Science involved a combination of Boolean operators (AND, OR) to refine search terms related to IBD, genetic susceptibility, immune response, and Genome-Wide Association Studies (GWAS). Both observational and experimental studies published from 2000 to 2024 that focused on genetic factors and immune responses in IBD in various

geographical settings were included in the study. Of 2150 articles obtained, 370 articles met the inclusion criteria and included in this study.

Results: Numerous genetic factors contribute to IBD susceptibility, with several susceptibility loci identified through GWAS. Among the most well-established genetic factors are: NOD - involved in bacterial recognition and immune response; IL23 - involved in T-cell differentiation and immune regulation; and ATG16L1 - involved in autophagy and pathogen clearance.

Conclusion: This comprehensive analysis provides an updated understanding of the genetic-immune axis in the context of IBD pathogenesis. These findings emphasise the intertwined roles of microbial and genetic elements in shaping the immune mechanisms underlying IBD.

Implications: Recent advancements in sequencing technologies and multi-omics integration have shed light on the intricate relationships between host genetic factors and immune pathways. Emerging therapeutic strategies, such as microbiota-targeted treatments, immune-modulating therapies, and precision medicine, present promising opportunities for personalised IBD management.

Keywords: Autophagy related 16 like 1, Interleukin-23 receptor, Nucleotide-binding oligomerisation domain-containing protein 2

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Abstract No.: 02

Prevalence and Determinants of Neck Muscle Weakness Among Students of Different University Departments: A Cross-Sectional Analysis

KRISHENA BHAT

ABSTRACT

Introduction: Neck pain is the leading cause of years lived with disability worldwide and it accounts for high economic and societal

burden. Altered activation of the neck muscles is a common musculoskeletal impairment presented by patients with neck pain.

Aim: This study aims to represent a database of neck muscle

strength and comparison of these measurements between students of various departments.

Materials and Methods: Kindly provide all relevant details including inclusion and exclusion criteria, place of study, variables assessed and statistical tests used. Total of 100 healthy students participated from ages 18-24. Isometric neck muscle strength was taken using

a pressure biofeedback device after ethical approval.

Result and Conclusion: There was a significant correlation in neck muscle strength and the activities of different department students as the P value of current study is 0.021, which is less than 0.05 at a confidence limit 95% suggesting a significant correlation.

Keywords: Neck Muscles, Isometric strength, University students

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Abstract No.: 03

Emerging Lifestyle Intervention and Alternative Therapies for Gut Modulation in Women's Health: A Focus on Menstrual, Reproductive and Hormonal Health

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ABSTRACT

The interplay between gut microbiota and women's health is a rapidly evolving field. The gut microbiome significantly influences oestrogen metabolism, immune regulation, and systemic inflammation, impacting conditions such as Polycystic Ovary Syndrome (PCOS), endometriosis, and menstrual irregularities. Emerging evidence underscores the role of dietary bioactive compounds—such as polyphenols, probiotics, and prebiotics—in modulating gut microbiota to enhance overall well-being. There is a growing body of evidence on effect of alternate therapies like yoga, meditation, timerestricted feeding and sleep on gut modulation.

This review aims to study the effect of different diets, bioactive components and alternate therapies in modulating the gut microbiota and its subsequent effect on hormonal health of women with PCOS, endometriosis and menopause. In this narrative review, a comprehensive literature search was conducted using PubMed, Scopus and Google Scholar to identify peer-reviewed article published in English over the past 10 years. Keywords and Boolean operators such as “gut microbiome AND women's health”, “probiotics AND women's health” and “alternative therapies AND

hormonal balance” were used to retrieve studies. Inclusion criteria encompassed clinical trials, observational studies, and review articles discussing the impact of diet, probiotics, prebiotics, physical activity, stress management and integrative therapies in gut modulation in women. Diets rich in fibre and antioxidants like the mediterranean diets promote the growth of beneficial bacteria, facilitating hormonal balance and reducing inflammatory responses.

Similarly, physical activity, sleep management, further optimise gut health by reducing dysbiosis and improving gut-brain axis communication, crucial for hormonal equilibrium. Alternative therapies, like yoga, meditation and time-restricted eating pattern, have shown promise in restoring microbial diversity and improving clinical outcomes in gut-mediated disorders.

This review synthesises the current understanding of gut modulation strategies and their implications for menstrual and reproductive health, emphasising the integration of evidence-based lifestyle and alternative interventions for disease prevention and management.

Keywords: Gut microbiota, Endometriosis, Menopause, Mediterranean diet, Meditation, Time restricted feeding, Probiotics, Prebiotics, Yoga

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Proximal and Organoleptic Analysis of Developed Product from Fermented Pearl Millet for Treatment of Gut Dysbiosis in Obesity

SAMPA DAS¹, MAHAK SHARMA²

ABSTRACT

Introduction: Obesity is one of the leading medical conditions for various Non-Communicable Diseases (NCDs), such as stroke, diabetes, high blood pressure and Cardiovascular Disease (CVD). An imbalance in the gut microbiome can influence energy extraction from food, inflammation, fat storage, and appetite regulation, all of which can contribute to obesity.

Aim: The present study aimed to develop a value-added fermented beverage (drink) product from pearl millet to enhance the gut microbiome of obese individuals in the age group 18-25 years.

Materials and Methods: Pearl millet Ambali drink was developed by fermenting the millet for 12- 14 hours in different concentrations such as T1 (85 g) and T2 (100 g). Sensory evaluation was done by 9-point Hedonic scale. Data was statistically analysed by using SPSS version 24.

Result: The results revealed that Ambali drink with 85% of fermented pearl millet was highly acceptable in all parameters - Color (60%), Appearance (23.3%), Taste (36.7%), Consistency (33.3%), Overall acceptance (60%) and the differences were statistically significant for taste, appearance and overall acceptability ($p < 0.01$). The proximal analysis of the highly acceptable products were energy (362 kcal), Protein (14.77 g), carbohydrates (60.41 g), Fat (6.37 g), fibre (9.76 g), and Vitamin B12 (0.36 mcg).

Conclusion: The study concluded that the Ambali drink incorporation with 85 g fermented millet was highly acceptable. The present study can be beneficial in enhancing the gut microbiota of individuals who are obese and reduce the risk of diseases like stroke, diabetes, and high blood pressure.

Keywords: Gut microbiota, Fermented millet, Waist circumference

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Organoleptic Evaluation and Proximal Analysis of Developed Product with Agnus Castus for Women with Primary Dysmenorrhoea

SRISHTI SHARMA¹, ANKITA SHARMA²

ABSTRACT

Introduction: Dysmenorrhoea affects women's quality of life, causing pain, mood changes, and activity disruption. Nonpharmacological treatments like Agnus castus have gained attention for managing pain. The seeds of agnus castus have traditionally be used to relieve the symptoms of pain during menstruation as it contains combination of iridoids and flavonoids which has antioxidant and analgesic property.

Need of this study: This study will provide evidence supporting the use of agnus castus for a natural, non-pharmacological treatment

for managing primary dysmenorrhoea, can integrate this knowledge when designing dietary plans for women with primary dysmenorrhea. These findings highlight Agnus castus as an affordable, natural remedy for primary dysmenorrhoea, which can inform policymaker to promote its inclusion in national healthcare guidelines for menstrual health management.

Aim: To develop a product with different variations from agnus castus. Secondary objectives include to conduct sensory evaluation of the developed product, to analyse the nutritional components of

the highly acceptable product and to assess the effect of developed product on women with primary dysmenorrhoea.

Materials and Methods: Phase 1 will comprise ingredient procurement and recipe development, while phase 2 will include sensory evaluation of the product by using 9-point hedonic scale. Phase 3 will include proximal analysis that will be done to assess the nutritional components like energy, protein, fat, carbohydrate, magnesium and flavonoids of the highly acceptable product. Phase 4 will have random sampling (women in the age group of 18 to 28 years). Phase 5 will have intervention of the product, while phase 6 will use an appropriate statistical tool to

analyse the data. Result: Agnus castus based product demonstrated improved sensory attributes and effectiveness in managing menstrual pain, with having antioxidant property and nutritional benefit.

Conclusion: Agnus castus showed promise as a natural remedy for primary dysmenorrhoea. Future work should explore longterm effects of this herb and further more advantages to add this herb in our day-to-day life to gain maximum benefit.

Keywords: Analgesic properties, Antioxidant properties, Flavonoids, Holistic health management, Menstrual pain relief, Non-pharmacological treatment

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Abstract No.: 06

Nutritional Intervention and Management of Sarcopenia in Postoperative Gastric Cancer Patients: A Comprehensive Review

SWATI¹, MAHAK SHARMA²

ABSTRACT

Introduction: Due to altered gastrointestinal function, decreased dietary intake, and cancer treatment, postoperative gastric cancer patients frequently experience nutritional difficulties and progressive loss of skeletal muscle mass and strength. Therefore, there is a need for efficient nutritional strategies to combat sarcopenia is highlighted by the fact that these factors worsen muscle wasting.

Materials and Methods: A total of 38 pertinent articles from the major biomedical and nutritional databases, such as PubMed, MEDLINE, Scopus, Web of Science, and the Cochrane Library, were selected to provide pertinent information regarding nutritional strategies in the management of sarcopenia in postoperative gastric cancer patients. Terms like “sarcopenia,” “nutritional management,” “nutritional intervention,” “muscle wasting,” and “protein supplementation” were part of the primary search strategy. Articles examining nutritional interventions for “cancer”, “gastric cancer,”

“stomach cancer,” “gastro-intestinal cancers,” and “postoperative care” were included in the secondary search strategy. Studies published within the years 1980- 2025 were included. Randomised controlled trials (RCTs), cohort studies, cross-sectional studies, and systematic reviews/meta-analyses were included. Results from the current review suggests that high protein diets, supplements of essential amino acids, and the incorporation of micronutrients like vitamin D, omega-3 fatty acids, calcium and antioxidants are important nutritional interventions for the patients with gastric cancer to increase their postoperative recovery and long-term survival.

Conclusion: Future studies should concentrate on improving dietary guidelines, advanced nutritional assessment tools and biomarkers, ultimately improving patient outcomes in gastric cancer patients.

Keywords: Cancer recovery, Muscle wasting, Personalised nutrition, Postoperative nutrition

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To Assess the Effect of *Berberis Aristata* in Lowering the Blood Glucose Level in Prediabetic Individuals: A Review

MANVI NARANG¹, DIVYA SANGHI²

ABSTRACT

Prediabetes is a stage in which the blood glucose levels are high but not high enough to be diagnosed as diabetes. *Berberis Aristata* is a spinous herb from the Burseraceae family. The active compound of this herb is berberine that is majorly determined in its stem and roots. This berberine has been recognised in recent researches for its antidiabetic properties and a potent in the modulation of glucose metabolism.

The review papers were sourced from PubMed and Google Scholar. This review focussed on studies evaluating the effect of berberine on lowering blood sugar levels, specifically Glycosylated Haemoglobin (HbA1c), Fasting Blood Sugar (FBS), and Postprandial Blood Sugar (PPBS), in prediabetic and diabetic individuals. A total of 15 studies were screened out of which 10 were selected for the present study. Only the studies with a minimum sample size of 70-100 prediabetic individuals and an intervention period of at least 12 weeks were

included. Papers examining the effects of berberine on health conditions other than diabetes or with an intervention period of less than 12 weeks were excluded.

These Randomised control trials demonstrated a significant decrease in HbA1c levels, fasting blood sugar, and postprandial sugar levels in the experimental group who were taking Berberine intervention in comparison to placebo. All the studies selected for the review concluded that *Berberis aristata* has a positive effect on blood glucose levels in prediabetic individuals.

The study provides a valuable insight on *Berberis Aristata* as a natural intervention for lowering the blood glucose levels in prediabetic individuals. The findings help in bridging the gap between traditional herbal medicine and modern diabetes management.

Keywords: Berberine, Fasting blood sugar, Glycosylated haemoglobin, Prediabetes

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Value Added Iron Rich Jam Incorporated with Palmyra Jaggery (*Borassus Flabellifer*)

TANNU GOSWAMI¹, PRATIBHA SINGH²

ABSTRACT

Introduction: Jam is a widely consumed fruit-based product valued for its taste, texture, and convenience. Palmyra jaggery (*Borassus flabellifer*), a natural sweetener rich in iron, has the potential to enhance the nutritional profile of jam, making it a functional food. Assessing its sensory characteristics, Total Soluble Solids (TSS), and moisture content is essential to ensure product quality.

Aim: This study aims to develop an iron-rich jam using Palmyra jaggery and evaluate its sensory properties, TSS, and moisture content.

Materials and Methods: Palmyra jaggery was incorporated as the primary sweetening agent in different proportions. A sensory evaluation was conducted using a nine-point hedonic scale, where a panel of selected members assessed taste, texture, aroma, and color to determine the most acceptable formulation. Additionally, TSS and moisture content were analysed to ensure product stability.

Results: Sensory evaluation revealed high acceptability, with favorable responses regarding sweetness, smoothness, and color. TSS and moisture content analysis confirmed product stability.

Conclusion: The incorporation of Palmyra jaggery in jam formulation enhances its nutritional value while maintaining desirable sensory attributes. This innovation holds potential as a functional food to

support iron intake, particularly for individuals prone to iron deficiency anaemia.

Keywords: Functional food, Sensory evaluation, Total soluble solids

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Abstract No.: 09

Proximal and Organoleptic Analysis of Developed Product from Germinated Quinoa for Enhancement of Gut Microbiome in Lactating Mothers

ASMITA ANAND¹, MAHAK SHARMA²

ABSTRACT

Introduction: Lactation and pregnancy lead to increased metabolic needs and stress of the mother due to physiological changes in the body, which further influences the maternal gut microbiome. Germination enhances the nutritive value, bioavailability and digestibility of quinoa. Germinated quinoa volunteer for the gut microbial population and is known to reduce oxidative stress in lactation.

Aim: The present study aimed to develop a value-added germinated cookie product from germinated quinoa to enhance the gut microbiome of lactating mothers in the age group of 20- 40 years.

Materials and Methods: Germinated quinoa cookies were developed by germinating the quinoa for 48 hours in different concentrations such as T1 (30 g) and T2 (40 g). Sensory evaluation

was done by 9-point hedonic scale. Data was statistically analysed by using SPSS version 24.

Results: The results revealed that the germinated quinoa cookie with 40% of germinated quinoa was highly accepted in all parameters, namely, taste (29.7%), appearance (40%), colour (46.7%), texture (43.3%) and overall acceptance (56.6%). The proximal analysis of the highly acceptable products was energy (479.08 kcal), protein (7.97 g), carbohydrate (60 g), fat (22.46 g), fibre (7.96 g), iron (5.08 mg) and calcium (117.32 mg).

Conclusion: The study concluded that the germinated quinoa cookie with 40 g of germinated quinoa was highly acceptable. The present study is beneficial in enhancing the gut microbiome of lactating mothers and reducing the oxidative stress of the individual.

Keywords: Gut microbiota, Germination, Oxidative stress

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Product Development, Organoleptic Evaluation and Nutritional Assessment of Pearl Millet and Guava-based Product for Anaemic Population

PRIYA BANSAL¹, BHAVINI GOEL², MAHAK SHARMA³

ABSTRACT

Introduction: Anaemia is a common nutritional deficiency disorder that has increased from 58.66% (NFHS-4) to 67.10% according to NFHS (2024). Pearl Millet, with many nutritional factors, has a good amount of iron. Guava has a good amount of Vitamin C, which increases the bioavailability of iron.

Aim: Therefore, the present study aimed to develop a products from pearl millet and guava for the anaemic population to increase the absorption of iron.

Materials and Methods: The chocolate pops were developed in different concentrations i.e. T1 30 g, 20 g; T2 25 g, 25 g; T3 20 g, 30 g from pearl millet and guava pulp, respectively, without using

any heat and a standard was developed with only incorporation of 50 g of pearl millet.

Results: The sensory evaluation revealed that both the products T2 and T3 were highly acceptable with a score of 9 (46.7%) whereas (T3) with the incorporation of 20 g of pearl millet and 30 g of guava pulp was most acceptable with a score of 8 (36.7%). The product T3 had 66.6 mg of Vitamin C, 381 kcal of energy, 74 g of protein, 61 g of total carbohydrates and 4.45 mg of iron.

Conclusion: However, 8-15 mg of iron is recommended per day for children and 28-30 mg per day for women. Studies have shown that ascorbic acid is required for the absorption of iron.

Keywords: Chocolate pops, Iron bioavailability, Vitamin C

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Impact on Psychological Symptoms in Combat Sports

SUHANI¹, SHALINI BHATI², KOMMI KALPANA³

ABSTRACT

Introduction: Combat sports rely on weight classes to ensure fair competition, but many athletes engage in Rapid Weight Loss (RWL) and Rapid Weight Gain (RWG) through extreme methods to compete in specific weight category. While RWL is culturally implanted in these sports, it poses significant health risks, including kidney stress, metabolic dysfunction, psychological issues, and long-term complications, challenging the integrity of the sport. However, the scientific information related to prevalence, factors associated with RWL and RWG and their impact on psychological symptoms is limited.

Aim: The study is aimed to assess RWL and RWG strategies and

their impact on Psychological Symptoms in Combat Sports.

Materials and Methods: The study included 120 competitive level athletes aged between 14-25 years from four combat sports: judo, taekwondo, boxing, and wrestling. Each sport group included 30 participants, comprising male and female athletes, with a history of practicing RWL and/ or RWG. Standardised questionnaires on RWL and RWG and Profile of Mood States (POMS) were used to collect the information.

Results: RWL and RWG identify risky behaviour that could affect health, psychology and performance of combat sports athletes.

Conclusion: The risky behaviors of athletes in Combat sports needs an attention to protect their health, psychology and enhance performance.

Keywords: Psychological symptoms, Combat sports, RWL, RWG, Mood States

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Abstract No.: 12

Smart Nutrition: Revolutionising Patient Health with AI-Driven Solutions

NEHA YADAV¹, PRATIBHA SINGH²

ABSTRACT

Artificial Intelligence (AI) is driving a paradigm shift in healthcare, particularly in how patient nutrition is managed. Chronic conditions like obesity, diabetes, and heart disease are increasing globally, underscoring the need for tailored nutritional strategies. Conventional dietary guidelines often fail to address individual requirements, leading to poor health outcomes and adherence issues. AI has emerged as a game-changer by analysing complex datasets—including genetic, metabolic, and behavioural factors—to design highly personalised nutrition plans.

This paper examines the potential of AI to enhance dietary precision, boost patient compliance, and adapt plans in real-time, while also addressing critical challenges such as data security, algorithmic fairness, and reliability. The global rise of chronic conditions such as obesity and cardiovascular diseases highlights the urgency for more dynamic and personalised solutions. AI's ability to process extensive and complex data has made it a valuable asset in healthcare, enabling the design of nutrition plans that cater to each patient's unique needs. This transformation has the potential to improve adherence, deliver better health outcomes, and reduce the burden on healthcare systems. This review aims to investigate how AI can revolutionise patient nutrition management by enabling precision-based interventions.

The core objectives include:

Improving Accuracy: Demonstrating how AI enhances the precision of dietary recommendations.

Encouraging Compliance: Exploring how personalised plans foster better adherence among patients.

Maximising Resources: Understanding AI's role in optimising healthcare efficiency and resource allocation.

Addressing Risks: Identifying and mitigating challenges such as data privacy concerns and biases in algorithms.

Advancing Solutions: Providing strategies to enhance the reliability and equity of AI-driven approaches.

The paper employs a critical review methodology, synthesising existing research and case studies to evaluate AI's role in nutrition management. Emphasis is placed on the integration of AI in designing personalised dietary interventions, assessing compliance rates, and addressing ethical and technical challenges. The analysis includes the exploration of AI technologies, such as machine learning, predictive analytics, and real-time monitoring to demonstrate their application in healthcare settings. It also reviews the implications of these technologies for patients, healthcare providers, and policymakers.

Findings suggest that AI-driven approaches to nutrition management significantly improve patient outcomes. By tailoring dietary plans to individual needs, AI increases adherence rates and facilitates real-time adjustments based on health metrics. AI also enables healthcare providers to allocate resources more efficiently, ensuring that interventions are both cost-effective and impactful. However, challenges such as data security, algorithmic bias, and the transparency of AI systems remain critical barriers to widespread adoption. The paper underscores the need for ethical frameworks and robust data governance to address these concerns.

AI is transforming patient nutrition management by offering a more personalised, data-driven approach to dietary interventions. This shift not only enhances health outcomes but also addresses the limitations of traditional nutrition guidelines. While challenges such as data privacy and algorithmic reliability exist, these can be mitigated through ethical practices and advanced system design. AI's potential in healthcare is immense, and its integration into nutrition management represents a significant step toward more effective and equitable healthcare solutions.

Keywords: Artificial intelligence, Chronic diseases, Dietary recommendations, Nutrition management, Personalised nutrition, Machine learning, Real-time monitoring

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Abstract No.: 13

Assessment of Biochemical, Physical parameters and Dietary Practices among Chronic Obstructive Pulmonary Disease (COPD) Patients

VIDHI BINDAL¹, ANKITA SHARMA²**ABSTRACT**

Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disorder with dietary habits and nutritional status playing a crucial role in symptom management and disease progression. Limited studies have evaluated the knowledge, attitudes, and practices of patients regarding COPD-specific food guidelines and their relationship with biochemical indices. This study evaluated dietary adherence in COPD patients, its link to biochemical markers and symptom severity, and explored educational gaps and the impact of dietary interventions on disease management.

Aim: This study aimed to assess the practices of individuals diagnosed with COPD concerning dietary recommendations and analyse the relationship between adherence to these guidelines, biochemical markers, and symptom severity. Secondary objectives included identifying educational gaps and evaluating the potential impact of dietary interventions on disease management.

Materials and Methods: A cross-sectional study was conducted among COPD patients (n=60) using structured questionnaires and Modified Medical Research Council (MMRC) questionnaire, Questionnaire for dyspnoea scale (mainly COPD patients) to evaluate these patients. Biochemical indices such as serum albumin, lipid profile, and inflammatory markers (e.g., CRP) were assessed.

Participants were assessed on their dietary habits, their physical health, severity of COPD and much more. Data were analysed using statistical tools to determine correlations and significant differences.

Results: Findings revealed that participants with higher knowledge to COPD-specific dietary guidelines had significantly lower levels of inflammatory markers and reduced symptom severity. Approximately 38% of the participants, who consume high amount of Omega 3 fatty acid, magnesium, protein rich foods faces less severe problems. Conversely, those with poor adherence exhibited worsened symptoms and suboptimal biochemical profiles. Knowledge gaps were observed in 67% of participants, highlighting the need for targeted educational interventions.

Conclusion: Adherence to dietary guidelines positively influences biochemical indices and reduces COPD symptom severity. The study emphasises the importance of nutritional education as an integral component of COPD management. Future research should explore long-term dietary interventions and their effects on disease progression.

Keywords: Biochemical indices, Dietary guidelines, Nutritional education

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An Overview of Parenting Styles and Their Influence on Child's Eating Habits

BHARTI VASHISTH¹, PRATIBHA SINGH²

ABSTRACT

Introduction: Parents have one of the most influential roles to play in determining children's diet. Studies show that the common child rearing practices known as authoritative, authoritarian, permissive and neglecting significantly influence children's food choices, meal behaviours and eating patterns. Poor eating habits, mostly associated with suboptimal child-rearing measures, lead to nutritional decline and long-term health consequences.

Aim: This review aimed to find out the effects of parenting styles on children's eating patterns, with special focus on the processes by which parenting promotes or hinders children's health.

Materials and Methods: Studies focussing on the association between parenting styles and children's eating behaviours were retrieved. The data was collected using specific keywords, including "Parenting Styles," "Child Eating Habits," "Authoritative Parenting," and "Dietary Behavior," from viable sources such as PubMed, Science Direct, Research Gate and Google Scholar. A

total of 25 articles were reviewed, in English from the year 2015-2025 and a narrative review was conducted.

Result: Preliminary studies shows that authoritative parenting revealed itself as the most suitable one and promotes balanced eating habits, as this form of childcare is based both on warmth and control. While authoritarian and neglectful rearing was related to overeating, food refusal, and emotional eating. Permissive Parenting, where the parent gave in easily to children's demands, was associated with irregular meal timings and low dietary quality. The argument is that the key issues regarding children's relationships with food are key parenting behaviours with potential wide-ranging impacts for health and development throughout childhood.

Conclusion: Basic child-rearing patterns are central in shaping children's eating patterns. Encouraging authoritative parenting effectively can help young people have healthier dietary habits as well as lower probabilities of having eating disturbances.

Keywords: Child nutrition, Dietary behaviours, Food preferences

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Assessing the Effect of Commercialised Formulations for Purification of Reused Edible Refined Cooking Oil: A Review

SEJAL AHUJA¹, DIVYA SANGHI²

ABSTRACT

Introduction: Oil is a major ingredient in Indian cooking, and reusing it is common in households and commercially. Reheating oil beyond its smoking point breaks down unsaturated fatty acids, forming free radicals and trans fats, leading to cardiovascular diseases, insulin resistance, diabetes, and a disrupted gut microbiome. Since oil is an expensive commodity, discarding it is not feasible, necessitating a formulation to reduce toxins and improve physical properties for reuse.

Aim: To find the current literature on effect of commercialised formulations for purification of reused edible refined cooking oil.

Materials and Methods: Papers were sourced from PubMed, Google Scholar, and ResearchGate. This review focused on papers examining the effect of formulations on at least two-time reheated edible oils, focusing on Free Fatty Acids (FFA) neutralisation with NaOH and KOH.

Result: The findings showed that sodium hydroxide (NaOH) and

potassium hydroxide (KOH) effectively reduces FFAs in reused refined cooking oil through chemical neutralisation by forming soap and water, which is later removed. Liquid-liquid extractions were also used. Reducing FFAs is crucial to prevent trans-fat formation. However, industrial ingredients like magnesium silicate, used to absorb contaminants and acid clay montmorillonite used as a bleaching agent to decolourise reused oil, raise health concerns.

Magnesium silicate interferes with drug absorption (e.g., miconazole and misoprostol), while montmorillonite clay causes dehydration, respiratory issues, and allergic reactions.

Conclusion: There is need of further research could focus on natural food grade formulation.

Keywords: Food safety, Oil purification, Reused cooking oil

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Abstract No.: 16

The Iron Boost: A Nutritional Snack with *Lepidium Sativum* and *Oryza Sativa*

PRIYA SHARMA¹, PRIYA MISHRA²

ABSTRACT

Introduction: Anaemia occurs when tissues cannot maintain a normal haemoglobin concentration, often due to deficiencies in iron, folic acid, vitamin B12, or folate. *Lepidium sativum* is rich in proteins, fatty acids, vitamins, minerals, and various bioactive compounds. Combined with rice flour, jaggery, almonds, and raisins, they serve as an excellent source of iron. Studies have shown that consuming these ingredients significantly improves haemoglobin levels in patients with iron deficiency anaemia.

Aim: This study aims to develop and standardise sticks using rice flakes flour, garden cress seeds, and nuts and also to assess the sensory characteristics of the developed sticks.

Materials and Methods: The study was conducted to develop a product from garden cress seeds and rice flake flour, jaggery and dry fruits. Garden cress seeds were soaked and rice flakes were dry roasted and ground into a fine powder and then combined into a dough using jaggery, raisins, almonds and water. Then, rolls were prepared using a sev-making machine and baked in the oven. This

was followed by the formulation of sticks and the optimisation of the product based on sensory properties. For sensory evaluation, the product was used in different variations. In T1- garden cress seeds (20 g), rice flour (60 g), jaggery (20 g), almonds (2.5 g), and raisins (2.5 g). In T2, garden cress seeds (25 g), rice flour (60 g), jaggery (20 g), almonds (2.5 g), and raisins (2.5 g), respectively, to develop sticks. The sensory evaluation was done by using a 9 point hedonic scale.

Result: The study revealed that T2 was found to be the most acceptable product in terms of taste, texture, colour, appearance and overall acceptability. The nutritional composition of sample of 100 g was (energy-423 kcal, carbohydrates-31.12 g, protein-31.64 g, fat-7.677, fibre- 4.36 g, moisture-10.44 g, iron-7.4 mg and ash content-2.6 g).

Conclusion: This study concluded that sample T2 can be used for the anaemic population, as it has high iron content.

Keywords: Anaemia, Garden cress seeds, Rice flaked flour

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Innovative Ragi Mayonnaise Enriched with Ashwagandha and Moringa

YUKTA MITTAL¹, LAKHVINDER KAUR²

ABSTRACT

Introduction: Mayonnaise, a popular emulsified condiment with 70-80% oil is valued for its creaminess and flavour but raises health concerns due to high fat, low protein, and raw egg yolks, leading to microbial risks and reduced shelf life. Consumer demand for healthier, allergen-free alternatives has driven efforts to innovate. This study develops ragi-based mayonnaise enriched with avocado, ashwagandha, and moringa. These functional ingredients, rich in phytochemicals, offer a nutritious, long-lasting, and plant-based option that aligns with dietary trends and safety requirements.

Aim: Develop ragi-based mayonnaise and evaluate its sensory, nutritional, and antioxidant properties, and shelf life.

Methodology: Phase 1: Ragi Milk Extraction: Select and clean high-quality ragi seeds. Soak in distilled water (1:3) for 8-12 hours.

Grind soaked seeds with water (1:4) using a blender to form a slurry. Strain to extract milk. Pasteurise at 72°C for 15 seconds, then cool below 10°C. Phase 2: Preparation of Mayonnaise: Blend peeled, deseeded avocados to a smooth pulp. Hydrate tragacanth gum (1:10 ratio) at 60°C for 1 hour. Combine avocado pulp, ragi milk, vinegar, spices, and gum, homogenise at 2,000 rpm, gradually add oil, and evaluate sensory and nutritional properties.

Results and Conclusion: The developed mayonnaise displayed excellent sensory qualities, including creaminess, flavour, and texture, with high antioxidant activity from moringa and ashwagandha. Proximate analysis revealed reduced fat, enhanced protein, and increased dietary fibre due to ragi and avocado. The product, with a shelf life of over 40 days, offers a safe, preservative-free alternative.

Keywords: Functional food, Plant based, Phytochemicals

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Potential of Cowpea (*Vigna unguiculata*) and Soybean (*Glycine max*) in Herb and Spice Infused Tofu Production

SHIVALI BANERJI¹, PRIYA MISHRA²

ABSTRACT

Introduction: The rise in vegetarianism, veganism and plant-based diets are driven by health, environmental, and ethical concerns. Plant-based alternatives help with lactose intolerance, dairy allergies, and calorie management. Tofu, rich in protein and bioactive compounds, is a key option. Cowpea, a nutrient-rich legume, is being explored as a tofu base. Adding herbs enhances its sensory and nutritional value, making it a healthier alternative to traditional soybean tofu.

Aim: This study aims to develop plant-based tofu by incorporating cowpea with soybean, infused with herbs and spices, and assess their sensory characteristics.

Materials and Methods: Cowpea (100 g) and soybean (100 g) were soaked (5 h), blended with water (500 mL), and sieved for milk extraction. The milk was boiled (90°C) with added herbs/spices: T1 - Garlic (4%), T2 - Cumin (2%), T3 - Curry leaves (4%). Coagulation was done, followed by sieving, pressing, and shaping into tofu. Sensory evaluation was done using a 9-point hedonic scale.

Result: The sensory evaluation of cowpea-soybean tofu with different herbs (T1 - Garlic, T2 - Roasted cumin, T3 - Curry leaves) using a 9-point hedonic scale (9 - Like extremely & 1- Dislike extremely) shows T1 (Garlic tofu) was the most acceptable, scoring highest in appearance (8.24), aroma (8.14), taste (8.18), texture (8.30), and overall acceptability (8.40). T2 (roasted cumin) had

moderate acceptance (7.38), while T3 (curry leaves) scored lower. The nutritional composition of 500 g T1 was: energy (702.45 kcal), carbohydrate (64.04 g), protein (59.32 g), fat (20.82 g), fibre (34.53 g), moisture (17.36 g), and ash (7.40 g).

Conclusion: The study concluded that tofu developed using cowpea, soybean, and crushed garlic (4%) is protein-rich and

suitable for vegans, lactose-intolerant individuals, and overweight individuals for calorie management.

Keywords: Allium sativum, Cuminum cyminum, Glycine max, Murraya koenigii, Vigna unguiculata

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Abstract No.: 19

Comparative Study on Sensory Acceptability of Normal, Bio-Fortified and Organic Wheat Flour Based Chappatis

GARIMA SHARMA¹, UTKARSH²

ABSTRACT

Introduction: Chapatis, a staple flat bread in Indian cuisine, vary in quality based on wheat flour type. There is a need to explore sensory differences among standard, bio-fortified, and organic wheat flours to identify optimal options for freshness and storage.

Aim: The study was undertaken to develop chappatis using different types of wheat flours, namely standard wheat flour, bio-fortified wheat flour and organic wheat flour by measuring the same amount of wheat flour and also checking the water absorption rate of each and assessed using (9-point) hedonic scale for sensory attributes.

Materials and Methods: The study was done in different phases, including procurement of raw materials, methods of preparation, recipes and procedure. The sensory evaluation and statistical analysis revealed that sample c, which was organic wheat flour was more acceptable than the other samples.

Results: On comparing the standard wheat flour with the organic one, there was a noticeable change in both. Initially, standard was preferred more than the organic one in terms of attributes like (taste, texture, aroma, tearing property, colour; however, after leaving the chappatis for 4 hours, it was noticed that the organic wheat chapati stood out to be the most preferred, meanwhile bio-fortified wheat chapati did retain some of the attributes and also declined in some of them.

Conclusion: It can be concluded that sample C, which is organic wheat flour is the most effective after 4 hours in all the attributes and can be consumed by every individual who used to go to work or anywhere where the chapatis need to be consumed after 4 hours.

Keywords: Attributes, Bio-fortified wheat flour, Sensory evaluation, Tearing property

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Wakame: A Nutritional and Therapeutic Powerhouse

CHARVI SHARMA¹, MADHVI AWASTHI²

ABSTRACT

Introduction: Seaweeds are often consumed in natural thrives in temperate coastal waters and is widely found in the seas surrounding Japan, Korea and China, where it is cultivated on a large scale. They are of many types, like green seaweed, etc. One of them is brown seaweed, commonly known as Wakame (*Undaria pinnatifida*). Despite its multifaceted potential, the consumption of Wakame remains relatively limited in many parts of the world. A lack of awareness regarding its health benefits contribute to this limited usage. Wakame should gain momentum, with initiatives focusing on its health benefits and environmental sustainability as a functional food.

Aim: This review explores the nutritional profile, diverse food applications and therapeutic benefits of Wakame, highlighting its value as a functional food. Hence, it discusses an initial effort to promote Wakame's global availability and its role in promoting sustainable food systems.

Materials and Methods: A total of 350 articles from CAB abstracts, Scopus, and Food Science and Technology Abstracts were studied. The keywords used were seafoods, blue foods, and edible algae. The articles signifying the edible and therapeutic uses were selected.

Results: Wakame is a highly nutritious food rich in vitamins (A, C, and E), essential minerals (calcium, magnesium, and iodine), dietary fibre, and polyunsaturated fatty acids. It also contains bioactive compounds such as fucoxanthin, fucoidan, and laminarin, which possess strong antioxidant, anti-inflammatory, and anti-cancer properties. Incorporating wakame into various dishes and food products enhances their nutritional profile while providing therapeutic benefits, including improved metabolism, immune support, and cardiovascular health. Additionally, its high iodine content is vital for thyroid function. Wakame's versatility in cooking further reinforces its value as a functional food.

Conclusion: Wakame serves as a sustainable and health-promoting food with significant nutritional and therapeutic benefits. Its iodine content is particularly valuable in combating iodine deficiency disorders. Its integration into modern diets can help address prevalent health issues like obesity, diabetes and inflammation. Strategies are required to optimise its bioavailability and expand its functional applications in the food and health sectors.

Keywords: Food, Functional, Iodine, Nutrition, Therapeutic uses, Wakame

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Development of Nutritionally Enriched Gluten Free Food Products and Synbiotics from Fagopyrum Esculentum: A Review

JYOTI ARORA¹, LUXITA SHARMA², KP KOCHHAR³

ABSTRACT

Introduction: A substantial proportion of individuals across the globe have coeliac disease, IgE-mediated allergy, or non-coeliac gluten sensitivity. Fagopyrum esculentum has garnered scientists' attention for its balanced amino acid composition and

mineral content, functional phytonutrient profile along with the pseudocereal's compatibility with diverse processing methods, and its probiotic and prebiotic characteristics. Thus, the mounting need for plant-based, lactose- and gluten-free, gut-friendly alternatives rendered Fagopyrum esculentum appropriate for this

research to develop nutritionally dense synbiotic functional food products.

Aim: This study aimed to develop and optimise recipes by adapting technological processes and enhancing them with prebiotics and probiotics, intended to produce a synbiotic functional food products with buckwheat as the primary ingredient constituent.

Materials and Methods: The study encompasses four phases of processing of *Fagopyrum esculentum* to remove antinutritional components, resurrection of probiotic culture, enumeration, and co-culturing of synergistic strains. Next, prebiotic formulations produced from ayurvedic bio-actives were employed for cultivating microorganisms consequently led to the development and standardisation of variants followed by samples' organoleptic assessment employing a 9-point Hedonic scale thereafter

statistical analysis using MAHP and TOPSIS methods and top-ranked products' nutritional, physicochemical, microbiological, and antioxidant profiles were investigated.

Results: The mean of all the product samples varied significantly at $p < 0.01$ confidence level with F values 13.31, 9.47, 14.18 and 10.93 of products (Jelly, Chocolate, Granola bar, Thandai, respectively).. The attributes colour and texture/consistency of all the product samples varied significantly at $p < 0.001$ confidence level.

Conclusion: The developed products resolve lacunae in functional bovine milk and gluten-free space by not only offering nutritious vegan appetising alternatives, but also possess therapeutic properties.

Keywords: Coeliac, Lactose-free, Buckwheat, Synbiotic

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Abstract No.: 22

Development of Plantain *Bhujia* for the Diabetic Population and Assessment of its Sensory Acceptability

KHUSHIKA TAAK¹, MADHVI AWASTHI²

ABSTRACT

Introduction: Plantain is an unripe banana a famous fruit from the southern region of India. They are a rich source of fibre, vitamins (A, B6, C, and K), potassium, magnesium, and antioxidants, as well as a good source of Resistant Starch (RS). RS is a type of starch that remains undigested in our small intestine and gets digested in the large intestine through the gut microbiome. There are four types of RS: RS type I, RS type II, RS type III, and RS type IV. The plantain contains RS type II, a granular starch, and is present in raw starchy foods.

Aim: This study aims to develop plantain bhujia as a nutritious snack for the diabetic population, and assess its sensory acceptability.

Materials and Methods: Plantain, Gram flour, and spices were sourced locally. Four samples (T0: 100%-gram flour, T1: 70% plantain

& 30%-gram flour, T2: 65% plantain & 35%-gram flour, T3: 60% 15 plantain & 40%-gram flours) were prepared by grating plantain, mixing it with gram flour, salt, red chili powder, and turmeric. The mixture was kneaded into a dough and extruded to make bhujia by frying. Sensory evaluation was done by a 9-point hedonic scale for all four samples.

Results: Sensory evaluation of samples T0, T1, T2, and T3 by 10 trained panelists using a 9-point hedonic scale showed that T2 had the highest acceptability, with a mean score of 7.7 ± 0.7 .

Conclusion: This study concludes that sample T2 (65% plantain and 35%-gram flour) had the best sensory acceptability and the processing was much easier than the other preparation samples.

Keywords: Cooking methods, Diabetic patients, Plantain, Resistant starch

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Yoga and Ayurveda: A Systematic Review of Their Role in Work Life Balance and NCD's Management

SONAKSHI¹, VANDANA GARG²

ABSTRACT

Introduction: Work-life imbalance is a major contributor to stress, which is a proven risk factor for Noncommunicable Diseases (NCDs) like hypertension, diabetes, and cardiovascular disease. Traditional Indian practices such as Yoga and Ayurveda provide holistic methods for stress management and overall health. While their ability to reduce stress has been widely documented, their potential to improve work-life balance and prevent NCDs has yet to be investigated.

Aim: To conduct a systematic evaluation of evidence from Indian research on the effectiveness of Yoga and Ayurvedic therapies for stress management, NCD prevention, and work-life balance.

Materials and Methods: This systematic review followed the PRISMA principles. Articles published between 2013 and 2023 were found by searching PubMed, ResearchGate, and Google Scholar for keywords like Yoga, Ayurveda, work-life balance, and NCDs. Inclusion criteria included studies done in India, participants aged 18 to 65 years, intervention-based designs, and outcomes

related to stress, blood pressure, and quality of life. A number of studies were screened, with 15 meeting the requirements.

Results: According to studies, Yoga Nidra reduces systolic blood pressure by 10 mmHg; however, Ashwagandha intake increases stress markers by 30%. Workplace yoga programmes have been demonstrated to reduce stress by 25% and enhance work-life balance by 15%, all while increasing productivity and job satisfaction. Combined therapies improve physical and mental well-being, effectively controlling work-related stress and increasing resilience.

Conclusion: Yoga and Ayurveda are holistic approaches to stress management, physical and mental health & NCD prevention, all while promoting workplace well-being. Their incorporation into daily routines and workplace programs can considerably improve quality of life, productivity, work-life balance, and help prevent and manage NCDs.

Keywords: Holistic methods, Non-communicable diseases, Stress management

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Assessment of Energy Intake, Macronutrient Intake and Body Composition of Inter Collegiate Level Wrestlers of Rohtak City of Haryana, India

TANURAG SINGHAL¹, MONIKA WASUJA², SARITA TYAGI³, ANIL VANAİK⁴, AJIT SINGH⁵

ABSTRACT

Introduction: Wrestling is a demanding sport requiring athletes to maintain specific body weight and composition to meet competition standards, which many wrestlers fail to achieve.

Aim: This study assesses the energy intake, macronutrient profile, and body composition of collegiate wrestlers from Haryana, with an emphasis on potential issues related to weight management.

Materials and Methods: Fifteen collegiate wrestlers from Rohtak participated in this study. We conducted anthropometric measurements, including height, weight, and Body Mass Index (BMI), Lean Body Mass (LBM), Fat Mass (FM), and skinfold thickness. Dietary intake was evaluated using a 24-hour dietary recall method to determine Total Energy Intake (TEI) and the contributions of carbohydrates, proteins, and fats to the overall diet.

Pearson correlation analysis was utilised to explore relationships among body composition measures and dietary intake variables.

Results: The mean TEI was 5635.4 ± 1754.62 kcal. Mean carbohydrate intake was 630.4 ± 219.4 g, and protein intake was 244.9 ± 73.15 g, and fat intake was 252 ± 87.42 g. The mean BMI of the wrestlers was 26.63 ± 2.43 kg/m², with a body fat percentage of $15.44 \pm 4.69\%$. Mean LBM was 69.64 ± 11.16 kg, and mean FM was 13.01 ± 5.12 kg. Significant correlations were found between body weight and fat intake ($r=0.75$, $p<0.01$). Fats contributed to 39.8% of TEI, while protein intake comprised only 18.03%. LBM

exhibited a negative correlation with sugar intake ($r=-0.585$, $p<0.05$), whereas FM correlated positively with sugar intake ($r=0.73$, $p<0.01$) and negatively with total TEI from protein sources ($r=-0.54$, $p<0.05$).

Conclusion: Collegiate wrestlers from Haryana primarily rely on fats for energy, which may hinder effective weight management. Dietary adjustments are necessary to increase protein intake, optimise body composition, and enhance performance in competitive settings.

Keywords: Macronutrient profile, Weight management, Wrestling

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Abstract No.: 25

Intricate Association of Polycystic Ovary Syndrome Symptoms with Dairy Product Consumption

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ABSTRACT

Introduction: PCOS is an endocrine and metabolic disorder affecting 4-10% of reproductive-age women globally. It features hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology, leading to symptoms such as irregular menstrual cycles, infertility, obesity, and insulin resistance. Polycystic Ovary Syndrome (PCOS) increases the risk of type 2 diabetes, cardiovascular disease, and mood disorders.

Dairy products rich in calcium, vitamin D, and protein are vital for bone health, muscle function, and hormonal regulation. However, components like Insulin-like Growth Factor-1 (IGF-1) and androgens in dairy can impact hormonal balance, potentially worsening PCOS symptoms. Lactose may also influence insulin resistance. Low-fat dairy products are associated with reduced risks for conditions like type 2 diabetes by influencing gut microbiota and metabolic function.

Aim: To search the current literature on relationship between PCOS Symptoms and Dairy Product consumption.

Materials and Methods: The articles were searched with the

search engines with the use of following keep word: Polycystic ovary syndrome, Dairy products. Previous research studies have indicated a 4% reduction in type 2 diabetes risk with low-fat dairy consumption. Notably, women consuming less than one portion of milk showed lower fasting insulin levels compared to those consuming four to six portions. Yoghurt, specifically fortified versions positively affect insulin sensitivity and increase circulating anorexic peptides, which help improve glucose homeostasis. Additionally, yogurt fortified with vitamin D and probiotics led to greater reductions in Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) and fasting insulin than traditional low-fat yogurt. The relationship between dairy consumption and PCOS is complex, with research yielding mixed results, underscoring the need for individualised strategies in managing PCOS but suggesting that a low-fat dairy diet may help with PCOS.

Conclusion: The inconsistencies in current studies call for further research to define the role of dairy products in PCOS.

Keywords: Dairy products, Low-fat dairy, Type 2 diabetes, Yogurt

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The *Surya Namaskar* Pathway to Weight Loss: A Narrative Review

M SINDHUJA¹, LALITA VERMA², PRITI RISHI LAL³

ABSTRACT

Introduction: Obesity is a rising concern for the country and the individual alike. *Surya namaskar* is part of the ancient Indian yogic practice, which can aid in the management of overweight/obesity.

There is no comprehensive review available on the effects of *Surya Namaskar* on weight loss in otherwise healthy overweight/obese individuals.

Aim: This narrative review aimed to highlight the quantity and duration of *Surya Namaskar* required to observe weight loss.

Materials and Methods: This narrative review included 12 studies meeting the inclusion criteria. A literature search was performed using the search terms *Surya Namaskar* and weight loss in: Cochrane Library, Google Scholar, PubMed, Research Gate, and Science Direct. Indian articles (2015-2025), in the English language, search limited to a maximum of 50 results in each database, were identified.

Results: Articles reporting weight loss from the practice of *Surya Namaskar*, males and females (18-60 years), reported to be overweight and/or obese with no co-morbidities, were included,

which encompassed eight case studies, two cross-sectional studies, one review article, and one Randomised Controlled Trial (RCT). The search yielded only one review article, yet the diverse study designs provided a comprehensive examination of the topic.

A reduction in Body Mass Index (BMI) of 1-1.96 kg/m², after 6-8 weeks of intervention and of 0.33-0.86 kg/m², after 45 days-12 weeks of intervention was reported by four and four studies, respectively. One study reported a reduced BMI of 4.2 kg/m², after 5 sets/repetitions (12 asanas) for 45 mins/day with gradual increments in the sets till 6 weeks. Another study reported a weight loss of 3.58 kg post-intervention (60 mins/day; 30 days). The reduction in BMI was not statistically significant in one study. Breathing exercises and meditation were included in three studies.

Conclusion: Studies reporting a higher reduction in weight/BMI had gradual increments (weekly) of 12 asanas beginning with 5-15 sets/repetition. This review concludes that studies lack diet monitoring, nutrient analysis during intervention, which can be explored further.

Keywords: Body mass index, Obesity, Weight loss

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Plant Based Diets Impact on Athletic Performance

PRERNA THAKUR¹, GURSEEN RAKHRA²

ABSTRACT

Eating mostly plant-based meals is becoming popular with people all over the world. This trend is growing because research shows that plant-based diets are good for health, more people are worried about how traditional animal farming harms the environment, and many are becoming more aware of the ethical issues related to treating animals. Plant-based diets encompass a variety of eating patterns that prioritise foods sourced from plants, while reducing or eliminating the intake of animal products. There are different varieties of plant-based diets i.e. vegan diets, lacto-vegetarian diets, lacto-

ovo vegetarian diets, Pescatarian diets and Flexitarian diets. Plant-based diets provide all the essential proteins, fats, carbohydrates, vitamins, and minerals needed for optimal health and are often rich in fibre and phytonutrients. While meat has traditionally been considered essential for athletic performance, there are several researches that examine the effects of plant-based diets on health, sustainability, and exercise performance.

A plant-based diet offers several benefits for athletes, including improved recovery, enhanced endurance, and sustained energy levels. Rich in antioxidants, vitamins, and minerals from fruits,

vegetables, whole grains, and legumes, it helps reduce oxidative stress and inflammation, promoting faster muscle recovery and less soreness after exercise. High levels of nitrates in vegetables like beets and spinach improve blood flow and oxygen delivery, boosting endurance, along with that plant-based diets naturally higher in carbohydrate content support efficient glycogen replenishment for prolonged activities. Additionally, focusing on whole grains and low-glycaemic foods stabilises blood sugar, providing consistent

energy and preventing crashes during extended workouts. Plant-based diets are also known for their environmental health benefits. Based on current available literature, plant-based diets enhance athletic performance, lower chronic disease risk, and conserve resources.

Keywords: Flexitarian diets, Lacto-ovo vegetarian diets, Lacto vegetarian diets, Pescatarian diets, Vegan diets

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Abstract No.: 28

Impact of the Mid Day Meal Scheme on Combating Malnutrition (Undernutrition) in School-Aged Children: A Cross-sectional Study

VIDUSHI MAKHIJANI¹, VANDANA GARG²

ABSTRACT

Introduction: Malnutrition, particularly undernutrition, is a critical issue among school-aged children in India, affecting their physical growth, cognitive development, and academic performance. The Mid-Day Meal (MDM) scheme, introduced by the Indian government in 1995 aimed to improve the nutritional status of children in government and government-aided schools by providing free, nutritious meals. While the programme has been widely implemented, its effectiveness in addressing malnutrition requires ongoing evaluation.

Aim: This study aims to assess the impact of the MDM scheme on the nutritional status and health of school-aged children, with a focus on reducing undernutrition.

Materials and Methods: A cross-sectional study was conducted with 500 children from schools across various regions of India, where the MDM scheme is active. Nutritional assessments were

performed using anthropometric measurements {height, weight, Body Mass Index (BMI)}, and data were collected through surveys with teachers and parents. The nutritional status of children was compared before and after their participation in the MDM scheme.

Results: Results showed significant improvements in the nutritional status of children. Around 70% of children demonstrated an increase in weight and height within one year of receiving meals through the MDM scheme. Rates of undernutrition decreased by approximately 30%, with notable reductions in stunting and wasting. Additionally, children showed improved school attendance and better concentration in class, correlating with the nutritional benefits.

Conclusion: The MDM scheme has effectively contributed to reduce malnutrition among school-aged children, leading to improvements in physical growth, academic performance, and overall health.

Keywords: Childhood growth, India, Public health, Undernutrition

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Black Wheat: A Review on Bio-fortified Functional Food for Diabetes Mellitus

MUSKAN BANSAL¹, MADHVI AWASTHI²

ABSTRACT

Introduction: Diabetes is a significant contributor to global morbidity and mortality, ranking as one of the most common chronic diseases of the 21st century. The consumption of whole grains, including coarse grains, has been associated with various health benefits related to diabetes mellitus.

Aim: This review aims to examine the current literature on the role of Black Wheat (BW) in preventing and managing diabetes mellitus. The review focuses on its mechanisms of action, effects on glycaemic control, and potential dietary applications.

Materials and Methods: The review synthesised findings from various databases, including Scopus, PubMed, and Web of Science. Documents search was done by using the keywords, 'Black Wheat', 'Diabetes Mellitus', 'Wheat' and 'Coloured wheat'.

Results: The initial search resulted in 42,658 articles which were further screened and systematic reviews, editorials, meta-analysis, and review articles (narrative) and duplicates were removed. The full-text articles presenting the data on the nutritional composition and bioactive compounds present in BW, emphasising its anthocyanin content and factors beneficial for managing diabetes mellitus, were screened and retrieved. After the whole screening process, 50 articles were used in this review.

BW, a pigmented wheat variety developed by crossing purple and blue wheat varieties, contains higher anthocyanin levels (40-140 ppm) compared to white wheat (5-15 ppm). Its anthocyanins, along with phenolic acids, tocopherols, carotenoids, and other bioactive compounds, contribute to its anti-diabetic properties. BW is also rich in dietary fibre, essential amino acids, vitamins, and minerals (zinc, iron, calcium, selenium). Clinical trials have demonstrated that the black wheat (BW) diet effectively inhibits Interleukin-6 (IL-6) and Tumour Necrosis Factor-alpha (TNF- α) levels associated with diabetes. Furthermore, studies indicate that BW consumption significantly lowers blood glucose and Glycosylated Haemoglobin (HbA1c) levels while enhancing insulin sensitivity, oral glucose tolerance, and insulin tolerance, highlighting its potential as a functional food for the management of diabetes and its associated complications.

Conclusion: BW shows potential as a dietary intervention for managing diabetes due to enhanced nutritional profile, low glycaemic index and better α -amylase and α -glucosidase enzyme inhibitory activity.

Keywords: Anthocyanin, Coloured wheat, Nutrition

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Contribution of Hand Grip Strength in Badminton Players: A Review

SAMRIDHI CHHABRA¹, KEERTHI RAO²

ABSTRACT

Introduction: Hand grip strength is an objective indicator of hand and upper extremity function. Since badminton requires agility and frequent movements, strong muscles are essential to reduce the risk of injury. This sport demands accuracy and precision, and the hand is the only point of contact with the equipment. Therefore,

a stronger grip is necessary to generate more force and maintain precision during the game.

Aim: The review aimed to find the role of hand grip strength in badminton players.

Materials and Methods: Electronic databases, including SCOPUS, PubMed, Science Direct, Google Scholar, and Springer Nature, were

used for the literature search. Articles published between 2010 and 2024 were selected. The studies focused on the importance of hand grip strength, its effect on badminton players, force distribution on the hand during strokes, and smash accuracy.

Results: A total of 31642 articles were identified from the database search and 8 articles were included in this review. The comprehensive review shows that hand grip strength plays an important role in increasing shuttle velocity, forehand smash speed and forehand smash accuracy in badminton players.

Conclusion: The review concluded that there is a positive correlation between hand grip strength and initial shuttle velocity, as stronger finger force increases shuttle speed. It was also found that left-handed badminton players have a higher forearm smash speed than right-handed players due to greater grip strength. Since badminton requires both strength and accuracy, the study also highlights a relationship between hand grip strength and forehand smash accuracy.

Keywords: Shuttle velocity, Smash, Upper extremity function

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Abstract No.: 31

Empowering Women's Health: A Narrative Review on a Multi-Dimensional Approach to Nutrition and Wellness

MARIYA QURESHI¹, PRIYA MISHRA²

ABSTRACT

Introduction: The nutritional status of women is a critical determinant of overall health and well-being, particularly in addressing challenges such as micronutrient deficiencies, metabolic imbalances, hormonal fluctuations and weight management. This review explores the holistic healthcare approach that integrates Conventional Nutrition Therapy with complementary interventions, including deep breathing exercises, sleep hygiene, and moderate physical activity, enhancing blood circulation, metabolism and digestion. Herbal remedies for hormonal and metabolic support and optimal water intake in improving the overall nutritional status of women.

Aim: This review aimed to evaluate the effectiveness of integrating nutritional therapy, physical activity, and lifestyle modifications on the nutritional status and overall well-being of women.

Materials and Methods: This review analysed 40 studies published from 2003-2024, from databases (PubMed, Scopus, and Google Scholar). Studies included (25 clinical trials, 10 cohort studies and 5 systematic reviews focussing on dietary interventions, physical activity and lifestyle modifications on women's health.

Results: The study populations ranged from 100 to 4000 participants, primarily women of reproductive age (18-45 years). Key outcomes analysed included Body Mass Index (BMI), metabolic markers (lipid profile), and inflammatory markers {C-reactive Protein (CRP), Erythrocyte Sedimentation Rate (ESR)}.

Across the reviewed studies, the holistic interventions integrating diet, physical activity and lifestyle modifications in most studies led to a significant reduction in BMI (1.2-2.5 kg/m², p<0.05), a reduction in Low-Density Lipoprotein (LDL) cholesterol levels by 10%, decrease in ESR by 10 mm/hr. and reduction in CRP by 30%, indicating improvements in weight management, inflammatory and cardiovascular markers. This review underscores the potential of integrating diet, physical activity and lifestyle interventions to improve the nutritional status and overall health of women, suggesting that a holistic approach could offer significant benefits for managing metabolic and lifestyle-related conditions.

Conclusion: Future research should focus on validating these interventions through clinical trials and exploring their long-term impact on women's health.

Keywords: Herbal remedies, Holistic approaches, Nutritional status, Nutrition therapy, Sleep hygiene, Women's health

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Gender Differences in Quality of Life Among Research Students: A Comparative Study

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ABSTRACT

Introduction: The quality of life of research students play a pivotal role in shaping their academic performance, mental health, and overall well-being. The Quality of Life (QoL) among research scholars in India is influenced by a complex interplay of academic, personal, and environmental factors. Research scholars often face significant challenges, including academic pressures, financial constraints, and limited work-life balance, which can adversely impact their physical and mental health.

Aim: The main purpose of this study was to determine the specific affected domains of quality of life among PhD students and to assess the gender difference in quality of life among research scholars.

Materials and Methods: This study was conducted at Dayalbagh Educational Institute, Agra used an exploratory research design with a quantitative approach. Data was collected via surveys over three months, through SF- 36 questionnaire involving 200 research scholars (100 males and 100 females).

Results: The socio-demographic profile of the participants showed that they were aged 26-30 years, with more single males (88%) than females (68%). Dietary preferences show females (37%), following vegetarian diets, while males (56%) favour lacto-vegetarian options. Body Mass Index (BMI) data reveal equal underweight proportions

(8%), higher obesity in males (68%), and females (18%) with a normal BMI. The SF-36 health score data reveal gender differences across eight domains. Males score higher in physical health, general health, and physical functioning.

Females show more variability, particularly in emotional well-being, social functioning, pain, and energy, with wider distributions across performance levels. Males generally have better physical and functional health, while females experience more emotional and energy fluctuations. There were differences in mean scores between males and females across various health domains. Males scored higher in physical health (P-V 0.27NS) functioning (P-V 0.67NS), and pain (P-V 0.24NS), while females reported better emotional well-being (P-V 0.00s) and slightly higher energy levels (P-V 0.65NS). Overall, total mean scores were nearly identical, with minimal gender differences in health perception.

Conclusion: The study reveals that males tend to have better physical and functional health, with higher scores in physical health, functioning, and pain. Females, however, experience more emotional and energy fluctuations, scoring higher in emotional well-being. Despite these differences, the overall health perceptions between genders were similar, with minimal variance in total mean scores.

Keywords: SF-36, Mental health, Social wellbeing

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Understanding Vitamin D Deficiency: Insights into Epidemiology, Health Impacts, and Supplementation Options

PRIYANKA SINGH¹, SHUBHRA SARASWAT²

ABSTRACT

Vitamin D, a fat-soluble vitamin, is essential for bone health, immune modulation, and cellular growth. Uniquely, it acts as both a nutrient and hormone precursor, synthesised in the skin upon UVB sunlight

exposure. It exists as vitamin D₂ (from plants and fortified foods) and D₃ (from animal sources and skin synthesis). Both forms are biologically inactive, requiring liver and kidney hydroxylation to convert into the active form, calcitriol (1,25-dihydroxyvitamin D).

Community-based Indian studies in the past decade reported a Vitamin D deficiency prevalence of 50-94% in healthy controls, while hospital-based studies showed 37-99%. A 2011 study by Kadam et al. on premenarchal girls in Pune (n=214) found a 34.2% prevalence. In 2017, Kapil et al. studied 1222 school children (aged 6-18 years) in Himachal Pradesh, revealing prevalence rates of 81% in Kangra and 80% in Kullu districts.

The main causes of vitamin D deficiency are modern lifestyles, urbanisation, pollution, and changing dietary habits contribute to widespread Vitamin D deficiency. Factors include limited sun exposure, fibre-rich diets with phytates, increased sunscreen use, cultural practices like the burqa system, and unplanned pregnancies in nutrient-deficient women, worsening vitamin D levels in mothers and children.

Vitamin D deficiency leads to skeletal issues like rickets, osteoporosis, and osteomalacia, and extra-skeletal effects, including depression, Parkinson's disease, suicide risk, infections, autoimmune diseases, and cancers. It also increases risks for heart disease, Type 2

diabetes, and obesity. Vitamin D regulates calcium absorption, immune function, and cell proliferation, highlighting its protective roles and therapeutic potential across various conditions.

The market offers various bioavailable vitamin D supplements, including capsules, tablets, gummies, and oral solutions. Commonly available doses range from 400 IU to 10,000 IU per serving, tailored to individual needs. These supplements address vitamin D deficiency, with cholecalciferol (D3) is the most effective and widely used form.

Vitamin D supplements, particularly cholecalciferol (D3), are vital in combating widespread deficiency, offering flexible dosing options to suit individual needs. These supplements play a crucial role in preventing and managing skeletal and extra-skeletal complications, reinforcing their importance in maintaining overall health and addressing global vitamin D insufficiency.

Keywords: Ergocalciferol, Prevalence, Vitamin cholecalciferol

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Abstract No.: 34

Assess the Quality of Services and Nutritional Status Among Anganwadi Children: A Review of Evidence

SHIVANI NAGAR¹, LUCY GEORGE²

ABSTRACT

Introduction: Malnutrition in children under five years is a pressing issue in India and globally, particularly in low- and middle-income countries. It manifests as stunting (low height for age), wasting (low weight for height), and underweight. Rising childhood obesity adds to the double burden of malnutrition. Anganwadi Centres (AWCs) under the Integrated Child Development Services (ICDS) are critical for providing food and healthcare to combat this issue. However, challenges in service quality and implementation limit their effectiveness.

Aim: This review evaluates the quality of services delivered by AWCs and the nutritional health of children using these 23 centres, focusing on rural and urban India.

Materials and Methods: The review draws on data from research articles and the National Family Health Surveys (NFHS-4 and NFHS-5). Key indicators like stunting, wasting, underweight, and obesity were analysed, along with factors such as maternal education, dietary habits, and access to AWCs.

Results: In Haryana, stunting affects 27.5% of children, wasting 11.5%, and 21.5% were noted to be underweight, with improvements in some districts but persistent disparities in others. In urban areas like Rohtak, stunting is at 24.1%, wasting at 14.1%, and there were 20% underweight children. This review shows the data of 12 screened studies and the inclusion of five research studies that have the similar criteria to our parameters. Maternal education, birth weight, birth order, and regular use of AWC nutrition services significantly influence outcomes. Children who regularly consumed AWC nutrition were less likely to be malnourished. However, service gaps and low community awareness hinder optimal outcomes.

Conclusion: AWCs play a vital role in tackling child malnutrition, but gaps in service delivery and inequalities persist. Strengthening ICDS programmes, engaging communities, and educating mothers can significantly improve outcomes.

Keywords: Anganwadi centres, Malnutrition, Nutrition, Stunting, Supplementary, Underweight, Wasting

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Abstract No.: 35

Milk Thistle (*Silybum marianum*): A Comprehensive Review of Its Therapeutic Potential and Food Applications

BHARTI¹, PRATHIBHA SINGH²**ABSTRACT**

Introduction: Milk Thistle (*Silybum marianum*), commonly known as 'doodhpatra' in Hindi, is a member of the Asteraceae family and has been widely utilised for centuries as a therapeutic herb. The bioactive complex, silymarin, extracted from the seeds of *Silybum marianum*, consists of flavonolignans such as silybin, silydianin, and silychristin. Due to its established antioxidant, lipid-lowering, antihypertensive, antidiabetic, anti-obesity, and hepatoprotective properties, milk thistle holds significant potential for food applications.

Aim: This review aims to comprehensively analyse the bioactive properties and potential food applications of *Silybum marianum*. While the health benefits of milk thistle are well-documented, research focusing on its molecular structure, metabolism, and innovative applications in food remains limited. By investigating its phytochemical profile and extraction methodologies, this study provides insights into the feasibility of incorporating milk thistle into functional food formulations.

Materials and Methods: A comprehensive literature review was conducted using Google Scholar to gather data on *Silybum*

marianum. The bioactive compounds were assessed through spectrophotometry, while fatty acid composition was analysed using Gas Chromatography-Mass Spectrometry (GC-MS). Additionally, solid-liquid extraction and Soxhlet extraction methods were explored for obtaining aqueous and fatty fractions using different solvents.

Results: Findings from existing studies highlight the significant therapeutic properties of milk thistle, particularly its hepatoprotective effects and its role in managing metabolic disorders such as diabetes and obesity. The vegetable oil extracted from milk thistle seeds contains high levels of polyunsaturated fatty acids, contributing to its nutritional value and potential incorporation into dietary formulations.

Conclusion: Milk thistle exhibits promising applications in functional foods and nutraceuticals due to its potent bioactive compounds. However, further research is needed to elucidate its molecular mechanisms, optimise extraction techniques, and explore innovative delivery systems for enhanced bioavailability.

Keywords: Bioactive compounds, Hepatoprotective, Spectrophotometry

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Effect of Muscle Energy Technique and Passive Stretching in Patients with Tension-type Headache: A Scoping Review

ONGARHONI KIKON¹, KSHITIJA BANSAL²

ABSTRACT

Introduction: Tension-type Headache (TTH) is one of the most prevalent forms of headache, often resulting in decreased quality of life.

Aim: This review aims to determine the effect of the muscle energy technique and passive stretching on pain and range of motion in patients with tension-type headache.

Materials and Methods: Relevant studies published between January 2015 and January 2024 were identified through an extensive search of electronic databases, including PubMed, PEDro, and Google Scholar. Keywords such as 'Tension-type headache', 'Muscle Energy Technique', 'Passive stretching', 'Headache therapy', and 'Physical therapy' were utilised. Only Randomised Controlled Trials (RCTs) published in English were considered. Studies focusing on migraines, post-traumatic headaches, or involving pharmacological,

surgical, or non-physical interventions were excluded.

Results: Seven RCTs comprising a total of 500 participants with TTH were included in the review. Five studies assessed Muscle Energy Technique (MET) and two focused on passive stretching. Both MET and passive stretching demonstrated significant improvements in reducing pain and muscle tension. MET appears to improve cervical muscle flexibility and reduce headache frequency, while passive stretching aids in decreasing muscle tightness. The overall quality of the included studies ranged from moderate to low risk of bias.

Conclusion: Both MET and passive stretching are effective strategies for managing TTH by reducing pain and improving function. Further research with larger sample sizes and extended follow-up periods is necessary to confirm the long-term benefits of these therapies.

Keywords: Headache therapy, Physical therapy, Post-traumatic headache

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Non-Pharmacological Management for Primary Dysmenorrhoea: A Systematic Review

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ABSTRACT

Introduction: Primary Dysmenorrhoea (PD) is cramping pain or an idiopathic origin that starts within 6-12 months after menarche. The prevalence of primary dysmenorrhoea is 25-90% females worldwide. Various symptoms accompanying PD have decreased the overall quality of life of females.

Aim: The main purpose of this review was to find various management options for females having PD.

Materials and Methods: Full-length articles in English were searched using various keywords, including 'primary dysmenorrhea,

dysmenorrhea, menstrual cramps, management, treatment, non-pharmacological treatment, conservative treatment'. Only studies focusing on the non-pharmacological treatment of PD in females aged 17-30 years were included, with menstrual distress & pain as primary outcome measures. The search was conducted across multiple databases, including PubMed, Google Scholar, Cochrane Database of Systematic Reviews and CINAHL, covering studies from 2012 to November 2024. A total of 206 articles were analysed.

Results: The analysis of 830 participants across the 14 selected studies confirmed the effectiveness of non-pharmacological

treatments for females with PD. The studies were analysed and reviewed in detail based on inclusion and exclusion criterion, focusing on various interventions such as physiotherapy, therapeutic exercises, physiotherapy modalities {Transcutaneous Electrical Nerve Stimulation (TENS), electrical stimulation}, yoga, thermotherapy, massage, gym ball exercises, aerobics, Pilates,

Kinesio taping, acupuncture and herbal tea. These approaches were found to be effective in managing the symptoms of PD.

Conclusion: Therapeutic exercises, yoga, and massage therapy and herbal tea has proven to be effective and cost-efficient in managing the symptoms of primary dysmenorrhoea.

Keywords: Idiopathic, Menstrual cramps, Therapeutic exercises

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Abstract No.: 38

Consumption Pattern of Plant-based Foods Rich in Protein: A Review

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ABSTRACT

Introduction: People are switching to plant-based diets because they provide both health advantages and environmental responsibility benefits. Mostly, consumers show rising interest in plant-based food products and protein alternatives. Businesses, together with consumers and nutrition professionals, increasingly demonstrate their interest in alternative plant-based foods and protein alternatives. Protein consumption affects muscle performance and immune system response and overall body wellness.

Aim: The review examines multiple studies on dietary protein consumption and the growing preference for plant-based alternatives. It also highlights opportunities and barriers in promoting plant-based diets.

Materials and Methods: The review evaluated research on plant-based protein market patterns and human reactions, as well as protein-based nutritional information. Researchers compared the findings to recognise repetitive addition to determine areas where current knowledge needs improvement.

Results: This review shows the data of 12 screened studies and the inclusion of five research studies that have similar criteria to

this review's parameters. Researchers have discovered that young adults between the ages of 19-40 years show clear relationships between their economic position and how well they eat through assessments of their protein consumption. Only high-income individuals have access to better-quality protein consumption than that of low-income individuals. In India, the number of people who consume plant-based nutrition continues to rise. The buying choices shift to wellness and eco-friendly and ethical considerations.

Conclusion: The overview indicates that eating plant-based foods generate both exceptional health advantages combined with environmental sustainability benefits. Factors that affect plant-based diet adoption include price points, along with dietary health issues and marketplace options and consumer popularity. The research proves people must follow balanced protein diets while they learn about nutrition and help implement policies. Plant-based alternative food systems address worldwide nutritional problems through a sustainable health-oriented dietary choices that are highly effective for the future society.

Keywords: Consumer perception, Food innovation, Nutrition, Plant-based diet, Plant protein, Sustainability

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Comparative Study on Sensory Acceptability of Normal, Bio-Fortified and Organic Wheat Flour Based Chappatis

UTKARSH¹, GARIMA SHARMA²

ABSTRACT

Introduction: Chapatis represent a staple Indian flatbread whose sensory quality varies by wheat flour type. This study compares standard, bio-fortified, and organic wheat flours to identify preferences for immediate and delayed consumption.

Aim: The study aimed to develop chapatis using different types of wheat flours, namely standard wheat flour, bio-fortified wheat flour and organic wheat flour by measuring the same amount of wheat flour and also checking the water absorption rate of each and assessed using (9-point) hedonic scale for sensory attributes.

Materials and Methods: The study was done in different phases, including procurement of raw materials, methods of preparation, recipes and procedure. The sensory evaluation and statistical analysis was performed.

Results: The findings revealed that sample c, which was organic wheat flour was more acceptable than the other samples. On comparing the standard wheat flour with the organic, there was a noticeable change in both initially standard was preferred more than the organic one in terms of attributes like (taste, texture, aroma, tearing property, colour and after leaving the chapatis for 4 hours, it was noticed that organic wheat chapati stands out to be the most preferred, meanwhile bio-fortified wheat chapati did retain some of the attributes and also declined in some of them.

Conclusion: Therefore, sample - C, which is organic wheat flour, is the most effective after 4 hours in all the attributes and can be consumed by every individual who used to go to work or anywhere where the chapatis were needed to be consumed after 4 hours

Keywords: Bio-fortified wheat flour, Sensory evaluation, Water absorption rate

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Exploring Visuospatial Skills in Physiotherapists: A Scoping Review

RITIKA KAPOOR¹, VINIKA CHAUDHARY², AARTI GUPTA³

ABSTRACT

Introduction: Visuospatial skills, the ability to perceive, process, and manipulate spatial information, are essential in various clinical settings, particularly in physiotherapy. These cognitive abilities play a crucial role in movement analysis, rehabilitation planning, and patient education. Despite their significance, there is limited research on how visuospatial skills are developed, assessed, and utilised within the field of physiotherapy.

Aim: This scoping review aims to explore the role of visuospatial skills in physiotherapists, identify the gaps in skill development, and examine methods of assessment and strategies for improvement. The review seeks to evaluate the existing literature on visuospatial

competencies and their impact on physiotherapy practice, with a focus on educational and clinical implications.

Materials and Methods: A comprehensive search of relevant databases was conducted to identify studies that examined the role of visuospatial skills in physiotherapy. The inclusion criteria focused on studies that addressed the application, assessment, and training of visuospatial skills among physiotherapists. A thematic analysis was performed to synthesise the findings and identify key trends in the literature.

Results: The review found that while expert physiotherapists demonstrate superior visuospatial skills compared to novices, systematic training in this area is underexplored. Studies highlighted

the significant role of visuospatial competencies in movement analysis, treatment design, and patient communication. However, gaps in physiotherapy curricula, limited exposure to practical training, and the lack of structured assessments were identified as barriers to skill development. Furthermore, the integration of technological tools, such as Virtual Reality (VR) and Augmented Reality (AR), were shown to enhance visuospatial training.

Conclusion: This scoping review highlights the essential role of visuospatial skills in physiotherapy, particularly in movement

analysis, treatment planning, and patient communication. While expert physiotherapists demonstrate superior visuospatial abilities, there is a notable gap in systematic training and assessment. The review underscores the need for structured skill development to enhance clinical efficiency and decision-making.

Keywords: Augmented reality, Clinical decision-making, Curriculum reform, Education, Movement analysis, Physiotherapy, Skill development, Technology, Virtual reality

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Abstract No.: 41

Relation of BMI and Diet Intake with Attention Span Among Adolescents: A Cross-sectional Study

ANKITA SEHJPAL¹, DIVYA SANGHI²

ABSTRACT

Introduction: Adolescence (10-19 years) is the phase of dynamic changes, including physical, social and mental. The adolescents' diet intake, Body Mass Index (BMI) vary widely in this age group. The types of diet play a crucial role in our lives as they govern not only our physical health but also our mental and social health.

Aim: This study intends to find the relation of dietary intake, BMI and physical activity with attention span of adolescents.

Materials and Methods: A cross-sectional community-based study was conducted to investigate the relation between BMI, diet intake, with attention span in adolescents. A total of 100 adolescents from the Faridabad region were recruited for the study. The study participants were randomly selected. The height, weight, 24-hour dietary recall, Global Physical Activity Questionnaire and Stroop test were the tools used for data collection. Descriptive statistics, t-test, and analysis of variance were used by SPSS version 24.

Results: The study revealed that the attention span of adolescent girls was 30.05+ 5.29 and 28.09+ 5.15 in the case of boys, but the differences were not statistically significant. The energy, protein, carbohydrates and fat intake computed under diet intake showed that the intake of macronutrients was higher among adolescent girls, with a mean energy intake of 1333.8+155.8, protein intake of 45.9+7.18, carbohydrate intake of 213.2+ 37.4 and fat intake of 26.45+3.75 as compared to boys (1324.5+123.7, 44.12+7.76, 208.6+ 43.9 and 26.05+4.04 respectively), but the difference was not statistically significant. The diet intake had no impact on the attention span of adolescents. Additionally, obesity does not affect the attention span of adolescents.

Conclusion: It is concluded that the attention span of adolescents was not associated with diet intake and BMI. However, a larger sample size may be examined to determine the significant association.

Keywords: Body mass index, Obesity, Physical activity

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Clinical Outcomes of Omega-3 Fatty Acid Supplementation in Sepsis: A Review

SWATI¹, MADHVI AWASTHI², NAMEETJERATH³

ABSTRACT

Introduction: Sepsis is a critical condition characterised by systemic inflammation and immune dysregulation, leading to significant morbidity and mortality worldwide. In 2017, sepsis was associated with approximately 48.9 million cases and 11 million deaths, accounting for nearly 20% of global fatalities. Effective therapeutic interventions are essential to mitigate its impact. Omega-3 Fatty Acids (FAs) are bioactive lipids known for their immunomodulatory and anti-inflammatory properties, which may influence clinical outcomes in sepsis.

Aim: This review aims to assess the impact of Omega-3 FAs supplementation on various clinical parameters in sepsis, including inflammation, haemodynamic, respiratory function, coagulation, and neurological status.

Materials and Methods: A narrative review was conducted using PubMed and Google Scholar. Relevant studies reporting the effects of Omega-3 FAs administration on clinical outcomes in sepsis were analysed, focusing on inflammatory markers, metabolic parameters, and patient recovery indicators.

Results: Studies indicate that Omega-3 FAs supplementation correlates with improved clinical outcomes in sepsis. Patients receiving Omega-3 FAs exhibited reduced inflammatory markers, including significantly lower C-reactive protein levels. Haemodynamic parameters showed antiarrhythmic effects and blood pressure reduction, while oxygenation indices and gas exchange parameters improved. Coagulation-related outcomes demonstrated reduced platelet aggregation, and metabolic parameters reflected positive modulation, including lower triglyceride levels and enhanced liver function. Neurological assessments indicated improved Glasgow Coma Scale scores, while renal function markers suggested a reduced risk of proteinuria. Several studies also reported a reduction in hospital stay length and mechanical ventilation duration.

Conclusion: The findings suggest that Omega-3 FA supplementation may provide beneficial effects in sepsis by modulating inflammation, coagulation, haemodynamic, and respiratory function, and neurological status. Further research is needed to develop standardised protocols for its clinical application.

Keywords: Critical care, Immune dysregulation, Inflammation

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Emerging Healthy Ageing through the Internet Environment Expansion in the Indian Context: A Scoping Review

VANDANA GARG¹, DIVYA SANGHI²

ABSTRACT

Introduction: The rapid development of internet facilities and the availability of digital technologies have significantly impacted various facets of life, including health and aging. As India's population is aging faster with improved health care services, it is of utmost importance

that we accept technology as part of our daily routines.

Aim: In this review paper, we are finding the emerging paradigm shift of healthy aging occurring due to the growing digital environment in the Indian context, through research conducted since 2015. It explores the role of social media platforms, telemedicine, mobile

health applications, and digital literacy in promoting health and well-being among older adults in India.

Materials and Methods: The major focuses of this paper include the influence of internet-based interventions on disease management, mental health, social engagement and health promotion activities, and access to healthcare services.

Results: The review highlights the use of the internet as an enabler and a potential barrier among older populations, depending on their access and digital competence. Many intervention studies showed significant progress in leveraging internet-based solutions to enhance the quality of life for older adults, challenges such as the digital divide, and cybersecurity fears. However, due to the

socio-cultural diversity of Indian older adults, access to these digital interventions were limited.

The findings highlight the growing need for policy-level initiatives to bridge the gap in using digital technology, improve digital literacy, and develop inclusive and user-friendly technologies.

Conclusion: This paper recommends building strategies for raising equitable internet usage for sustainable, healthy aging. This would address India's growing aging population and its unique socio-economic landscape.

Keywords: Chronic disease management, Digital divide, Digital literacy, Older adults, Social engagement, Telemedicine

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Abstract No.: 44

The Effects of Transcranial Direct Current Stimulation on Heart Rate Variability and Cardiac Autonomic Function: A Systematic Review

APARNA BARARIA¹, SUNITA KUMARI²

ABSTRACT

Introduction: Transcranial Direct Current Stimulation (tDCS) is a non-invasive neuromodulation technique that alters neuronal activity through weak electrical currents. While tDCS has been widely studied for its effects on cognition, mood, and pain, emerging research suggests that it may also influence the autonomic nervous system function, particularly Heart Rate Variability (HRV). HRV is an important indicator of autonomic regulation, reflecting the balance between sympathetic and parasympathetic activity.

Aim: This systematic review aims to evaluate the effects of tDCS on HRV and autonomic function by synthesising existing literature. It seeks to identify optimal stimulation parameters and assess the potential clinical applications of tDCS in autonomic regulation. Additionally, it aims to address inconsistencies in prior findings and provide recommendations for future research.

Materials and Methods: The review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A systematic search was conducted in NCBI, PubMed, and Google Scholar using the terms "Heart rate variability," "Autonomic function," and "Non-invasive stimulation" in combination with "Transcranial direct current stimulation." Only peer-reviewed studies published in English between 2015 and 2025 were included. Studies involving animals or using transcranial alternating current stimulation or repetitive transcranial magnetic stimulation as interventions were excluded.

Results: This systematic review analysed 13 studies involving 245 participants, including healthy individuals, patients suffering from Hemiplegia due to stroke, fibromyalgia, cerebral palsy, spinal cord injury, and refractory epilepsy. The findings indicate that tDCS significantly modulates HRV and autonomic function in most cases, with the left Dorsolateral Prefrontal Cortex (DLPFC) being the most effective stimulation site. Nine studies reported positive effects (positive outcomes included increases in Standard Deviation of Normal-to-Normal Intervals (SDNN), Root Mean Square of Successive Differences (RMSSD) and High Frequency (HF) power suggesting enhanced parasympathetic activity. Some studies also reported improvements in Low Frequency to High Frequency (LF/HF) and stress reduction), while 4 studies reported no significant effects (minimal changes in SD2-RR intervals), particularly when stimulation was applied to M1 or T3/Fp2 regions. Additionally, dose-dependent responses were observed, with higher intensities (3 mA) yielding superior autonomic benefits compared to lower intensities (1-1.5 mA).

Conclusion: The tDCS is a promising non-invasive intervention for enhancing autonomic regulation by modulating HRV, particularly when applied to the left DLPFC at 2-3 mA. The findings suggest that tDCS can be a valuable non-invasive approach for modulating autonomic function and enhancing HRV. Future research should focus on standardising protocols, assessing long-term efficacy, and exploring its broader applications in clinical and rehabilitation settings.

Keywords: Autonomic function, Dorsolateral prefrontal cortex, Non-invasive neuromodulation

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Abstract No.: 45

Gut Microbiota and Its Influence on Developing Irritable Bowel Syndrome: A Review

RIYA KHURANA¹, GURSEEN RAKHRA²**ABSTRACT**

Introduction: Irritable Bowel Syndrome (IBS) has a global prevalence of 11%, and it is amongst the most frequent gastrointestinal diseases. It is characterised by an impaired bowel function displaying symptoms such as changed stool habits accompanied by abdominal pain and discomfort. A major risk factor attributed to IBS is a dysbiotic gut that leads to inflammation and abnormal intestinal immune activity. Diet is known to alter gut microbiota. Therefore, a diet rich in Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols (FODMAP) is considered to be a risk factor since it causes visceral hypersensitivity, impaired gut motility and dysbiosis, promoting faster fermentation by gut microbiota and causing gas.

Aim: This review highlights the association of gut microbiota with IBS and an increase in studies of genome sequencing that help in the early identification of chronic disease development.

Materials and Methods: We searched PubMed, Medline, and Google Scholar for articles published in English between 2000 and December 2021 using the keywords "gut microbiota," "microbiota," "pathogenesis," "inflammatory bowel diseases," and "irritable

bowel syndrome". An average of 200 research publications was examined; those that did not include gut-related variables or the risk of acquiring noncommunicable diseases were excluded.

Results: Studies have shown that patients suffering from IBS have a distinct gut microbiota, and certain bacteria are linked to the intestinal symptoms. There is a reduced microbial diversity in IBS patients. There was an abundance of *Firmicutes* and a decreased number of *Bacteroidetes*. There is a direct relationship between IBS and the number of harmful bacteria like *E. coli*, *Clostridium* and *Ruminococcus*. Faecal bacterium *prausnitzii* was lower in IBS patients, making it a "good gut signature". Contrary to popular belief, *Lactobacillus* and *Bifidobacterium*, which are used as probiotics, were increased in patients with IBS.

Conclusion: Gut microbiota is now being studied immensely and is regarded as the "second brain". Recent microbiome gene sequencing has displayed a great number of links between gut microbiota composition and the development of gastrointestinal disorders such as IBS.

Keywords: Bowel function, Global prevalence, Gut dysbiosis, Gut-related variables

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Characterisation of Potential Drug Targets of Mycobacterium Tuberculosis for the Development of Antitubercular Agents

DHARIKA¹, SWATI SINGH²

ABSTRACT

Introduction: Tuberculosis is thought to be the deadliest airborne infectious disease in the world, which vividly ranges from being asymptomatic to a death-causing disease. The treatment landscape has become even more challenging with the emergence of extensive drug resistance and multidrug resistance in tuberculosis.

Aim: Biotin metabolism appears to be an important pathway which plays an essential role in Mtb's survival, persistence and bacterial immunity, providing an alternative anti-TB drug target. Two BioH isoenzymes (BioH1 and BioH2) are reported to be involved in Biotin synthesis in Mycobacterium Tuberculosis as well as other Mycobacterium species.

Materials and Methods: In this study, BioH genes will be isolated from the genomic DNA of Mtb H37RV and cloned into Escherichia coli XLB1 cells using the pET28c vector. The successfully transformed

E. coli cells will be cultured in LB media in IPTG at various temperature conditions to check for the protein expression and localisation. A rapid purification procedure for the protein, based on affinity chromatography, will be developed. The purified protein will be judged by SDS/polyacrylamide gel electrophoresis, and all its properties will be depicted by gene sequencing. Mutational analysis of BioH1 and BioH2 genes will be done to identify catalytic residues.

Results: We aim to purify BioH1 and BioH2 proteins for further analysis. The secondary structure of the protein will be developed on the basis of homology modelling, predicting the boundaries of protein domains and provide additional functional annotation of the protein.

Keywords: Affinity chromatography, Drug targets, Tuberculosis treatment

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Black Rice: A Promising Functional Food for Diabetes

SONIA¹, AKANKSHA YADAV²

ABSTRACT

Introduction: Diabetes affects people globally, making it a rising global health concern. Functional foods with anti-diabetic qualities have drawn a lot of attention, and dietary interventions are necessary for the management of diabetes. Black rice is a nutrient-dense grain, high in minerals, fibre, and anthocyanins, and has become a promising functional meal for managing and preventing diabetes. Black rice is also known as forbidden rice, purple rice, king's rice, heaven rice, and imperial rice and it belongs to the species *Oryza sativa* L. Black rice is used as a functional food due to its great health benefits. The black or purple colour of black rice is due to the presence of a pigment known as anthocyanin that may have antioxidant properties and antidiabetic effects.

Aim: This review aimed to find the anti-diabetic properties of black rice and its use as a functional food for diabetes management.

Results: This review highlights the potential benefits of black rice and focuses on its anti-diabetic properties. It includes how black rice can be used as a dietary intervention to help manage diabetes. Black rice helps in managing inflammation in diabetics and preventing cell damage in the fight against free radicals. Anthocyanins present in black rice help to reduce blood glucose levels by increasing insulin resistance, protecting pancreatic β cells, boosting insulin release, and slowing down the breakdown of sugars in the small intestine. The studies that the consumption of black rice has been known to improve glycaemic regulation and lower the cardiovascular disease risk factors in a person having type 2 diabetes.

Black rice includes many bioactive substances, including anthocyanins, which have been demonstrated to alter gut microbiota, lower inflammation, increase insulin sensitivity and increase glucose absorption. Consumption of black rice has been shown to increase glucose tolerance in diabetic animal models.

Conclusion: Black rice is considered a promising functional food for diabetes because of its anthocyanin content, safety, sustainability and anti-diabetic properties. Further trials are required to confirm the benefits and demonstrate the ideal consumption guidelines.

Keywords: Anthocyanin, Blood glucose level, Insulin resistance

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Abstract No.: 48

Hydrotherapy for Muscular Dystrophy: A Revitalised Approach to Improve Hand Function and Well-Being

RICHA CHAUHAN¹, DIVYA AGGARWAL²

ABSTRACT

Introduction: The term “muscular dystrophy” refers to a group of hereditary disorders that induce slow and widespread muscle degeneration because of the lack of glycoproteins in the muscle cell plasma membrane. There are several types of Muscular Dystrophy (MD), each having a unique onset period, inheritance patterns, and the pace of muscle degradation. Aquatic rehabilitation is currently used to treat neuromuscular disorders in patients who have abnormal sensations, poor coordination, impaired motor control or weakness, impaired balance or equilibrium reaction, decreased ability, abnormal gait pattern, decreased endurance, depression, or poor motivation. Patients can accomplish activities that would be impossible on land owing to the characteristics of water, including density, viscosity, buoyancy, increased resistance, hydrostatic pressure, and thermodynamics. These characteristics also help patients reach their rehabilitation objectives.

Materials and Methods: The study employs an experimental qualitative design and was conducted at the Indian Muscular Dystrophy Centre in Delhi. The subjects were individuals diagnosed with muscular dystrophy, selected based on inclusion criteria such as being diagnosed with MD, having a stable medical condition, aged between 15 and 50 years, and including both genders. Exclusion criteria include the absence of assistive devices, severe cognitive or physical impairments, and

an MMT score of less than 2. The study involved interventions such as hydrotherapy to assess their impact on dependent variables like hand grip strength and quality of life. Data collection was conducted over a period of four weeks, with sessions occurring three times per week. Instruments used include a hand-held dynamometer, bucket, hand gripper, peg boards, Quality of Life Scale Q-36, TheraBand, and Thera Loop. Ethical considerations, such as informed consent, were obtained and participant confidentiality was maintained.

Result: Hydrotherapy significantly improved the strength of left and right-hand grip in the experimental group compared to the control group. The specific t-values and p-values for these improvements were as follows: Left-hand grip strength: [T=5.55, P=0.003] Right-hand grip strength: [T=9.38, P=0.002].

Conclusion: Hydrotherapy has shown promise in treating and aiding the recovery of MD patients. Comprehensive studies with larger sample sizes are needed. MD is a genetic disease, causing significant health, medical, economic, and social issues. Current treatments manage symptoms and slow progression but do not cure the disease. Treatments include drugs like corticosteroids, which have side effects, and gene therapy, which is costly and limited to animal models.

Keywords: Hand grip strength, Health-related quality of life, Muscle strength, Non-invasive treatment

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Impact of Weight-Loss Strategies on Sports-Related Concussion in Elite Boxers

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ABSTRACT

Introduction: Concussions are a significant concern in boxing, exacerbated by repeated head blows and rapid weight loss strategies. Despite growing research on concussion risk, there is a lack of studies on the impact of weight loss strategies on concussion risk in elite boxers.

Aim: This study aimed to examine the impact of weight loss strategies on sports-related concussion in elite boxers.

Materials and Methods: The study included 30 elite boxers (15 male, 15 female) aged 18-30 years, who underwent weight cutting and regular competitive training. A standardised questionnaire and Sports Concussion Assessment Tool 6 was used to collect data.

Result: The study examined boxers' nutritional habits and weight loss strategies, investigating the impact of rapid weight loss on concussion susceptibility, considering physiological effects like dehydration and cognitive impairment.

Conclusion: This study highlights the need to address the impact of weight loss strategies on sports-related concussion in elite boxers. Rapid weight loss, dehydration, and electrolyte imbalances can increase concussion risk, compromising athlete safety and performance.

Keywords: Athlete safety, Boxing, Concussion prevention, Weight management

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Effective Rehabilitative Interventions with Patient-Tailored Approach on Spinal Muscular Atrophy: A Case Report

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ABSTRACT

Background: Spinal muscular atrophy is a genetic neuromuscular disorder of alpha motor neurons in the anterior horn of the spinal cord lower brainstem leading to progressive muscle weakness and atrophy. Physiotherapy plays a crucial role for this patient population as it enhances the muscular strength which ultimately helps in managing activities of daily life.

Purpose: The purpose of the study is focused on the effectiveness of individualised patient-centric rehabilitation is providing marked improvement.

Methods: In our study a 17 years old male had developed problems in running, stair climbing and later getting up from chair since last 2 years, after detailed examination, the patient is diagnosed

with Spinal Muscular Atrophy (SMA) - type 4 and then referred for physiotherapy, a detailed assessments muscle strength (lower limb), balance and functional activities are assessed on which, Berg Balance Scale (BBS) and Functional Independence Measure (FIM) scale are used as primary outcomes, a routine physiotherapy including isometrics, strengthening and balancing are strategically introduced in the rehabilitation in the period of 6 month and reassessed.

Results: The results of the primary outcomes show that there is notable percentage improvement in balancing (51.6%) through Berg Balance Scale and in activities of daily life (7.34%) through Functional Independence scale and also there is good muscular strength.

Conclusion: living life with spinal muscular atrophy is challenging, when we focusing more on muscle strength and balance training, it will definitely play a crucial role in managing the functional independence of the patient.

Implications: This study give profound implications for a properly designed personalised intervention is showing notable improvement in the patient, that's enhanced the activities of daily lifestyles.

Keywords: Spinal muscular atrophy, Balance training, Muscle strength

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Abstract No.: 51

Pilates and Its Effective Intervention in Several Conditions: Scoping Review

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ABSTRACT

Introduction: Pilates is a form of exercise which concentrates on strengthening the body with an emphasis on core strength and concentrate on posture balance and flexibility. Further it has emerged as safe intervention as it has much lesser risk of injury than other form of exercise. Pilates also focuses on mind body connection. Pilates has gained significant attention in recent years for its role in rehabilitation.

Purpose: This review aims to explore the effectiveness of Pilates and understand its scope in rehabilitation of patients.

Methodology: Articles were searched from 2020 to 2024 through electronic search engines such as PubMed, google scholar using the key words like Pilates, strength, principle of Pilates, core strength with various permutation and combinations. The studies published in English language and with full article were included in the review. Further, case studies and case series were excluded from the review process.

Results: There are 525 articles available out of which 40 articles matched with our exclusion and inclusion criteria with a total number of 623 participants. 8 cross-sectional studies reported its effectiveness in neurological conditions. 15 studies emphasised on its role in women's health. Moreover, 5 longitudinal studies reported positive effect on cardiorespiratory health. Apart from these 12 studies presented its impact on musculoskeletal, and sports condition.

Conclusion: Pilates is a valuable tool in the rehabilitation process, offering multiple benefits for recovery by promoting controlled movements and enhancing core stability, improving flexibility and body awareness.

Implication: This review has given overview on the impact of Pilates in various conditions which enable health care professionals to enhance their clinical services.

Keywords: Pilates, Strengthening, Core strength, Focus

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The Role of Virtual Reality in Enhancing Rehabilitation for Children with Cerebral Palsy

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ABSTRACT

Background: Cerebral palsy (CP) affects motor control and functional abilities, leading to limitations in daily activities. VR-based rehabilitation utilises motion tracking, immersive environments, and real-time feedback to engage children in therapeutic exercises. Through gamification, VR encourages repetitive movements and active participation, enhancing neuroplasticity and motor learning. Traditional rehabilitation methods, while effective, often fail to maintain high engagement levels among children. VR interventions have emerged as a promising alternative, offering interactive and immersive experiences to improve motor function, balance, and mobility in children with CP.

Purpose: This study consolidates research on the effectiveness of VR interventions in CP rehabilitation. It categorises findings related to motor function improvements, balance, postural control, and functional mobility while identifying research gaps and limitations.

Methodology: A comprehensive search was conducted in PubMed, PEDro, Web of Science, and Cochrane Library databases for studies published between 2007 and 2024. Studies were selected based on relevance to VR rehabilitation for CP. Inclusion criteria required Randomised Controlled Trials (RCTs) evaluating VR interventions.

Data extraction focused on intervention type, sample size, outcome measures, and key findings.

Results: VR interventions improved balance and postural control. Moderate evidence supports enhancements in gross motor function and gait efficiency. Studies utilising Xbox Kinect and Nintendo Wii demonstrated significant functional gains in children with CP. VR-based training enhances gait by allowing children to practice walking in a controlled, interactive environment, improving lower limb strength, endurance, and coordination.

Conclusion: VR-based rehabilitation is a promising adjunct to conventional therapy for children with CP. The interactive nature of VR enhances engagement, improving balance, motor function, and functional mobility. However, standardisation of VR protocols is needed for definitive clinical guidelines.

Implications: VR has the potential to revolutionise CP rehabilitation by making therapy more engaging and effective. Future research should focus on optimising VR designs, ensuring accessibility, and investigating long-term effects.

Keywords: Cerebral palsy, Virtual reality, Motor rehabilitation, Gait training, Postural control, Balance, Neuroplasticity

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Hemp Seeds: Exploring Their Potential in Promoting Human Health

RITU DUHAN¹, GOVIND BALLABH BHATT²

ABSTRACT

Introduction: Hemp (*Cannabis sativa L.*) is herbaceous plant, member of the *Cannabaceae* family. These tiny, brown seeds are abundant in High value nutrients as Proteins, Lipids, carbohydrate, vitamins and minerals. On other hand they are rich in biologically active compounds as Terpenes, Flavonoids, phytosterols, carotenoids, and phytocannabinoids.

Purpose: This review highlights the potential benefits of hemp seed and focus on its composition and nutritional benefits to human body.

Methodology: A comprehensive search on databases of Pub Med, MDPI, Scopus, web of science and Google Scholar was carried out using keywords such as „hemp seeds“, “therapeutic effects“, “health benefits“, “omega-3 fatty acids“, “cannabinoids“, and

"inflammation". Narrative review of research papers ensures the presence of polyunsaturated omega-3 fatty acids—Alpha-Linolenic Acid (ALA) and omega-6-Linoleic Acid (LA)—are essential for the heart health. Vitamin content has potential to meet or even exceed the Recommended Daily Allowance (RDA). Bioactive compounds secreted by seeds include terpenes, phenolic compounds, alkaloids, phytocannabinoids, beta-tocopherol, gamma-tocopherol, alpha-tocopherol and delta-tocopherol.

Result: Hemp seeds provide nearly 500-600 kcal/100 gm energy and contain approximately 25% of digestible protein, give a nutritional advantage due to absence of protease inhibitor. Remarkable lipid profile with polyunsaturated fatty acids such as linoleic acid (omega-6) and alpha-linolenic acid (omega-3) with a high content of essential fatty acids such as stearidonic acid and Gamma-Linolenic Acid (GLA). Health benefits of carbohydrate are associated with positive effects on the digestive tract, cholesterol reduction, and blood glucose level management. Hemp seeds

are packed with essential minerals phosphorous, potassium, magnesium, zinc, sodium that support bone health, muscle and nerve functions, blood sugar regulation and immune support. The allergenicity of hemp seeds is very low which makes Hemp Protein Isolate (HPI), containing approximately 86% edestin, a promising option for hypoallergenic foods.

Conclusions: Presence of all nine amino acids makes it a great choice for vegans and vegetarians. The potential of hemp seeds to support a balanced and healthful diet is highlighted by their combination of macronutrients, micronutrients and other advantageous substances like phytosterols and antioxidants.

Implication: Hemp seeds being rich in nutrients, can boost protein intake and improve heart health and aid digestion by introducing them in diet.

Keywords: Hemp seeds, Alpha-linolenic acid, Alpha-linoleic acid, Amino acid

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Abstract No.: 54

Nutritional Composition, Health Benefits and Culinary Applications of Quinoa

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ABSTRACT

Introduction: Quinoa is the seed of the chenopodium quinoa plant. It's also called "pseudo grains" Quinoa belongs to the dicotyledoneae class, the Chenopodiaceae family, and the Chenopodium genus. It is beneficial for groups of people indulging in sports activity, lactose intolerant person, children below 6 years, female with osteoporosis, individual having anaemia, diabetes mellitus, dyslipidaemia, gaining weight and wheat disease because of high nutritive values of quinoa, gluten free and therapeutic properties. Quinoa is a rich source of fibre, also contains a good amount of protein, vitamins, and minerals, and has a remarkable level of essential amino acids. Also, it has ample omega-3 fatty acid which is also beneficial for maintaining good health. In general, nutrient contents of quinoa are higher in variations per 100 g fresh weight of edible portion such as: protein (09.10-15.70 g), total fat (04.00-07.60 g) and dietary fibre (08.80-14.10 g).

Aim: To review nutritional potential of quinoa for improving human health and wellbeing.

Methodology: The literature for this review was searched in electronic databases including PubMed, Scopus, and Web of Science, using the following keywords, "Dyslipidemia, Pseudo grains, Chenopodium, dicotyledoneae, osteoporosis, Chenopodiaceae" Inclusion criteria consisted of peer-reviewed journal articles, systematic reviews, and

meta-analyses, whereas opinion pieces, unpublished reports, grey literature and Studies ageing more than 5 years were excluded. A total of 45 studies were included in the final review.

Result: This review findings from 45 studies examining quinoa's profile, health benefits, and Culinary Applications. Quinoa is shown to be a highly nutritious grain, rich in protein (09.10-15.70 g), total fat (04.00-07.60 g) and dietary fibre (08.80-14.10 g) & essential micronutrients such as magnesium, iron, and B vitamins. It is considered a complete protein due to its balanced amino acid profile, making it particularly beneficial for vegetarians and vegans. Quinoa's gluten-free nature, enhancing its appeal among individuals with celiac disease or gluten sensitivity. Culinary studies suggest quinoa's versatility in various dishes, including salads, soups, and baked goods.

Conclusion: Quinoa is considered a promising functional millet for consumption because of its antibacterial, anticancer, anti-diabetic, antioxidant, anti-obesity, and cardio protective properties. Further trials are required to confirm the benefits and demonstrate the ideal consumption guidelines.

Implication: The findings of this study show an implication for public health nutrition in Diet.

Keywords: Dyslipidemia, Pseudo grains, Quinoa, Chenopodium, dicotyledoneae, osteoporosis, Chenopodiaceae

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Abstract No.: 55

Comparative Effectiveness of Deep Friction Massage on Coracobrachialis in Adjunct to Conventional Physiotherapy Treatment in Patient with Adhesive Capsulitis

ANJALIKA EMMENUEL¹, PRIYANKA SETHI², JIYA GOYAL³**ABSTRACT**

Introduction: Adhesive capsulitis, commonly known as frozen shoulder, is characterised by pain and restricted Range Of Motion (ROM) in the shoulder joint. The coracobrachialis muscle is often implicated in limiting shoulder mobility due to its role in flexion and adduction. While Conventional Physiotherapy (CPT) remains the standard treatment, the addition of targeted Deep Friction Massage (DFM) may enhance therapeutic outcomes.

Methodology: A randomised controlled trial was conducted involving patients diagnosed with adhesive capsulitis. Participants were divided into two groups: the experimental group received DFM on the coracobrachialis along with CPT, while the control group received only CPT. Treatment was administered [3 sessions for 4 week]. Outcome measures included pain (using the Visual Analogue Scale) and shoulder ROM (flexion, abduction, and external rotation).

Result: The experimental group demonstrated statistically significant improvements in pain reduction ($p < 0.001$), and increased ROM ($p < 0.001$), compared to the control group. The addition of DFM at coracobrachialis resulted in a faster and more sustained improvement, particularly in shoulder flexion and abduction.

Conclusion: Deep friction massage on the coracobrachialis as an adjunct to conventional physiotherapy is more effective than conventional physiotherapy alone in reducing pain and improving shoulder ROM and function in patients with adhesive capsulitis. Incorporating DFM into rehabilitation programmes may enhance recovery outcomes.

Keywords: Adhesive capsulitis, Deep friction massage, Coracobrachialis, Physiotherapy, Shoulder rehabilitation

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Post-Surgical Rehabilitation in Breast Cancer Survivors: A Review of Literature

DEEPANSHA SIKRI¹, SUNITA KUMARI²

ABSTRACT

Introduction: Breast cancer is the most common cancer among women worldwide. There have been a lot of recent advancements in surgical treatments for breast cancer. However, post-surgical rehabilitation plays a crucial role for improving the physical functioning and Quality of Life (QoL) of breast cancer survivors.

Aim: The aim of this review is to summarise the existing literature on post-surgical rehabilitation interventions for breast cancer survivors.

Methodology: A systematic search was conducted in databases such as PubMed, Google Scholar and Cochrane Library for studies published in last 10 years, between 2016 and 2025. This review includes systematic review, pilot studies and randomised controlled trials that focuses on rehabilitation interventions and protocols for breast cancer surgeries.

Results: The review identified main areas of rehabilitation including pain reduction, exercise, Physical Activity (PA) and lymphedema treatment. Exercise and PA interventions showed significant improvement in shoulder mobility, pain, fatigue, lymphedema and QoL. Lymphoedema treatment particularly Manual Lymphatic Drainage (MLD) and shoulder and scapular strengthening exercises were effective in reducing limb volume and improving muscular strength.

Conclusion: The review emphasises the importance of individualised rehabilitation programmes for breast cancer patients, tailored based on the type of surgery performed. Strengthening exercise and PA along with MLD are most effective interventions for improving physical activity, pain and lymphedema.

Keywords: Post-surgical rehabilitation, Post-surgery physiotherapy, Breast cancer surgery, Breast cancer survivors, Lymphedema treatment

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Attitude of Physiotherapist and Efficacy of Non-Pharmacological Treatment in Non-Specific Low Back Pain: A Literature Review

SALONI CHAWAN¹, KSHITIJA BANSAL², PRIYANKA SETHI³

ABSTRACT

Introduction: Eighty percent of people experience Low Back Pain (LBP), with 90% being Non-Specific (NSLBP), classified as acute, subacute, or chronic. Poor posture and muscle imbalances, like Lower Crossed Syndrome causes weaken glutes and stiffen hip flexors, leading to compensatory movements like lumbar lordosis, anterior pelvic tilt, and increased joint stress.

Aim: This literature review examines impact of NSLBP, focusing various factors influencing physiotherapy practices like attitude, barriers and limitations.

Methodology: A literature review was conducted using databases such as PubMed, ScienceDirect, and Google Scholar, using keywords

like "NSLBP," "Lower Crossed Syndrome," "Posture," "Attitude," and "Physiotherapy interventions." The inclusion criteria focused on peer-reviewed studies from the last 10 years related to NSLBP and LCS, with a total of 10 articles reviewed. Studies that were non-English, case reports, or did not meet the inclusion criteria were excluded.

Results: Core stability, stretching, and strengthening exercises significantly improve pain, disability, and function in NSLBP. Beliefs impact physiotherapists' treatment decisions, with biopsychosocial techniques encouraging healing. Misguided beliefs about back protection and the unique nature of LBP were frequently present among physiotherapists. Optimising patient results in the therapy of persistent low back pain requires a multimodal treatment approach

that incorporates psychological, educational, and physical elements.

Conclusion: A comprehensive, evidence-based approaches are available for managing NSLBP. Physiotherapists' attitude plays a crucial role in decision-making and the effective management of non-specific low back pain. Physiotherapists' beliefs should be continuously evaluated and challenged through proper education to ensure evidence-based practice.

Implication: This study serves as a foundational analysis of Knowledge, Attitude, and Practice (KAP) among Indian physiotherapists in managing NSLBP effectively. This provides a base to build upon educational strategies for implementation.

Keywords: Non-specific low back pain, Attitude, Physiotherapy, Practice

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Abstract No.: 58

Mechanical Diagnosis and Treatment for Differential Diagnosis of Case Presenting as Diabetic Adhesive Capsulitis: A Case Study

SHEENA ARORA¹, KSHITIJA BANSAL²

ABSTRACT

Introduction: Adhesive Capsulitis is a debilitating disease which affects passive and active range of motion at shoulder joint. It is commonly seen in people suffering from diabetes specially females.

Aim: The purpose of this case study is to evaluates the potency of Mechanical Diagnosis and Therapy (MDT) in assessment and management of patients clinically diagnosed as diabetic adhesive capsulitis and its long-term/prophylactic effects.

Material and Methods: This is a case study on a 60-year-old female presenting with bilateral shoulder pain with diabetes. She had right shoulder pain for past 2 months that started insidiously whereas pain in left shoulder started post fall 3 months back. At initial examination VAS was 7/10 for right shoulder with limited Range Of Motion (ROM) in all planes of motion whereas for left shoulder it was 4/10 with limitation mostly restricted to end range internal rotation. Decrease in functionality was also reported by using Upper Extremity Functional Index (UEFI) - 14/80 on right and 63/80 on left. She was assessed through MDT and it was confirmed on 2nd visit that right shoulder had derangement syndrome whereas left shoulder had

dysfunction syndrome and was managed accordingly.

Results: After 6 visits at 2nd week, the pain in right shoulder improved markedly with increase in range of motion and functionality (55/80=68.75%) whereas in left shoulder there was not much improvement in ERP or functionality (63/80=78.75%). She was asked to continue her treatment for both the shoulders at home for another 4 weeks. On follow up at 6th week, the right shoulder remained better (VAS - 1/10, UEFI - 74/80=92.5%) and improvement in left shoulder was observed as well (VAS - 2/10 (ERP), complete IR and UEFI - 80/80=100%).

Conclusion: The patient demonstrated significant improvement in pain, range of motion and functionality on being assessed and treated by MDT.

Implications: This study suggests that MDT may be used in further studies to fully explore its potential as assessment and management tool and also as a prophylactic treatment to prevent relapse of diabetic adhesive capsulitis.

Keywords: Mechanical diagnosis and treatment, Shoulder Pain, Diabetic Adhesive Capsulitis

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Effect of Digital Food Environment on Dietary Choices in Adults of Delhi NCR: A Quantitative Survey

AAYUSHI MALIK¹, DIVYA TRIPATHI²

ABSTRACT

Introduction: The digital food environment, which includes online platforms such as social media, food delivery apps, and e-commerce sites, is a key determinant of dietary choices. These platforms influence consumer behaviors by promoting both healthier eating habits and increased consumption of calorie-dense, processed foods.

Aim: The study aims to assess the impact of digital food environments on dietary choices in the Indian context. It explores their association with demographic factors, health outcomes, and Non-communicable Diseases (NCDs). Additionally, the research seeks to address gaps related to the role of digital literacy and the prevalence of misinformation in shaping food-related decisions.

Methodology: Cross-sectional study will be conducted among 250 adults aged 18-60 years in Delhi NCR. Participants are selected based on inclusion criteria such as regular use of online food platforms and basic digital literacy. Surveys and interviews are being

used to gather both qualitative and quantitative data. Key outcome measures include food availability, affordability, accessibility, marketing strategies, behavioural nudges (e.g., discounts, visuals, and loyalty points), and the role of nutritional information.

Results: Preliminary findings suggest that digital food environments significantly influence dietary choices, particularly among younger and digitally literate demographics. Behavioural nudges and targeted advertising increase the consumption of calorie-dense foods, while limited digital literacy contributes to the spread of misinformation.

Conclusion: The digital food environment has a profound impact on dietary behaviour from the evidence collected so far with socio-demographic differences playing a crucial role especially among the young people, while it offers opportunities for promoting healthy eating, it also poses risks such as increased consumption of unhealthy foods and the spread of misinformation.

Keywords: Digital Food Environment, Quantitative Survey, Dietary choices

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Impact of Digital Food Environment on Eating Habits of Indian Population: A Qualitative Study

NISHTHA CHAURASIA¹, DIVYA TRIPATHI²

ABSTRACT

Introduction: The digital food environment encompassing online platforms such as Instagram and YouTube as well as food delivery apps shape how individuals interact with food. It has transformed food accessibility, creating convenience for consumers but also influencing their dietary habits in ways that may not always promote health. With the growing prevalence of diet-related health issues, such as obesity, diabetes, and cardiovascular diseases, it has become crucial to understand how this digital ecosystem affects eating behaviours.

Aim: This study aims to assess the impact of the digital food environment on dietary habits of the Indian people.

Methodology: In this study we conducted 2 focussed group discussions on the population aged between 18-45 years old. The probes were developed around the effect of social media and digital marketing on food habits, how food delivery apps are changing people's dietary intake and their recommendations on improving these dietary habits. One of the groups consisted mainly of college going students (both home and hostel residents) and were 7 in number. The other group had adults (both working and non-working)

of 30-45 years of age. 7 open ended questions were asked to guide the discussion, the data was audio recorded, and important points were noted to draw conclusions.

Results: The studies have showed that the population of age groups around 18-25 were more influenced by social media platforms and food delivery apps. Hence the frequency of their order was more (at least once a week). Whereas the elderly population around 35-45 years of age preferred more of home cooked meals and were less likely to be influenced by these online apps as they are less likely to view influencers as role models. The elderly population focused more on healthy options whereas the younger ones focused more on price and convenience.

Conclusion: Digital food environment is affecting eating behaviour of individuals in a lot of ways. As, the choices are not always healthy,

the unhealthy eating behaviour is leading to obesity, diabetes and other cardiovascular health issues. The results suggest the need to put a control on the negative impact of these platforms and in turn identify ways in which it can help build healthier eating habits.

Implications: This highlights the importance of targeting digital food environments with health-conscious campaigns, especially for younger audiences, to promote healthier choices and reduce the risk of diet-related health issues like obesity and diabetes. Policymakers and app developers can play a key role in shaping the food environment to encourage better dietary habits across all age groups.

Keywords: Digital food environment, Unhealthy eating habit

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Abstract No.: 61

Assessing the Impact of Food Delivery Apps on Dietary Choices of Young Adults

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ABSTRACT

Introduction: Food Delivery Apps (FDAs) have changed eating habits, offering convenience and variety. The Indian FDA market, valued at ₹766 billion, is expanding due to urbanisation and lifestyle changes. Their role in shaping dietary choices raises concerns, as promotional strategies it often encourages unhealthy consumption patterns. The objective of the study is to assess the impact of food delivery apps and digital platforms on dietary choices adults and the association between the use of food delivery platforms and socio-demographic factors.

Methodology: A cross-sectional study was conducted in Delhi-NCR with 120 participants. Convenience sampling was done to recruit young adults between the age of 18-45years in the study. Data collection was done using structured questionnaires assessing FDA usage and dietary behaviours, sociodemographic parameters were taken using modified Kuppuswamy scale 2024. Anthropometric data (height and weight) was taken using self-reporting. Statistical analysis was conducted using Stata16, applying descriptive statistics, t-tests, chi-square tests, and correlation analysis.

Results: The findings of the study indicate that FDAs are significantly changing food choices, the mean age of participants was 25±9 years; balanced gender ratio. FDAs offer customisable meal options, promotional discounts and app features promote high-calorie consumption. Social media has significantly influenced food ordering. 68% uses FDAs 1-2 times per month; evenings are the preferred ordering time. Women tend to prefer health-conscious selections, whereas men priorities convenience.

Conclusion: FDAs present both opportunities and challenges in dietary behaviours. They enhance accessibility to diverse food options; their marketing strategies can encourage unhealthy eating. A balanced approach involving regulatory measures and consumer awareness is essential. This study provides insights for policymakers, health professionals, and the food industry to promote responsible FDA practices, ensuring healthier food environments.

Keywords: Food delivery apps, Dietary choices, Consumer behaviour, Public health, Digital nutrition

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Abstract No.: 62

Factors Influencing Adherence to Telerehabilitation Programmes in Athletes with Sports Injuries: A Systematic Review

AWANTIKA PUNERA

ABSTRACT

Introduction: Telerehabilitation has come out as a fulfilling solution for rehabilitation of sports injuries, particularly in the post-COVID era. However, complying with traditional methods of remote rehabilitation program is a significant challenge, posing recovery outcomes.

Aim: This systematic review aims to identify and synthesise factors influencing adherence to telerehabilitation programmes in athletes with sports injuries.

Methods: A comprehensive search was done in PubMed, SPORTDiscus, PEDro, and CINAHL databases for studies published between 2013 and 2023. Keywords included (“telerehabilitation” OR “telehealth”) AND (“sports injuries” OR “athletes”) AND (“adherence” OR “compliance” OR “dropout”). Studies were included if they focused on athletes, reported adherence metrics, and evaluated telerehabilitation programmes. Data were extracted and thematically analysed to identify key barriers and facilitators.

Results: Of the 1,235 studies screened, 22 studies were included. Four main themes emerged: (1) Athlete-Specific Factors (e.g., motivation,

time constraints, competition schedules), (2) Technology Factors (e.g., ease of app use, real-time feedback, wearable integration), (3) Therapist-Related Factors (e.g., frequency of communication, personalised feedback), and (4) Cultural/Socioeconomic Factors (e.g., access to technology, language barriers). Elite athletes demonstrated higher adherence rates due to structured team support, while amateur athletes faced challenges related to self-motivation and technology literacy.

Conclusion: Adherence to telerehabilitation in athletes is impacted by a complex interplay of personal, technological and environmental factors. Strategies such as gamification, hybrid models (combining remote and in-person sessions), and culturally tailored interventions may enhance adherence. Future research should focus on developing standardised adherence metrics and exploring the long-term impact of adherence on recovery outcomes.

Keywords: Telerehabilitation, Sports injuries, Athletes, Adherence, Compliance, Telehealth, Digital physiotherapy

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Effect of Germination and Roasting on Physiochemical and Sensory Analysis of Soup Pre-mix Developed Using Pulses

APURVA JINDAL¹, MEHAK KATYAL²

ABSTRACT

Introduction: Pulses are rich sources of essential nutrients but contain antinutritional factors that can affect bioavailability.

Aim: This study evaluates the effect of germination and roasting on the physicochemical and sensory properties of a soup pre-mix formulated using green gram (moong dal), black gram (urad dal), and split Bengal gram (chana dal), along with foxnuts (makhana) and dehydrated vegetables.

Materials and Methods: The pre-mix will be developed in four compositions: one with raw pulses, one with roasted pulses, one with germinated pulses, and a final combination incorporating both germination and roasting. Germination is expected to improve protein digestibility, enhance nutrient bioavailability, and reduce

antinutritional factors, while roasting may enhance sensory attributes, impart desirable flavour, and improve shelf stability. Each formulation will undergo physicochemical characterisation, particle size analysis, and sensory evaluation to determine the optimal combination for enhanced nutritional quality and consumer acceptance.

Results: This study aims to optimise processing techniques to develop a functional, nutrient-dense, and convenient soup pre-mix, promoting the utilisation of pulses in value-added food products and contributing to health, dietary diversity, and sustainable food innovation.

Keywords: Germination, Roasting, Premix Soup, Pulses, Sensory Evaluation

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Technological Advancements in the Development of Plant-based Meat: Innovations, Challenges, and Future Prospects

VANSHITA VINAYAK¹, SUNDUS NIDA²

ABSTRACT

The increasing demand for sustainable and nutritionally balanced meat alternatives has led to significant advancements in plant-based meat technology. Innovations in ingredient selection, processing techniques, and formulation strategies have enabled the creation of plant-based products that closely replicate the texture, flavour, and nutritional profile of conventional meat. Key protein sources such as soy, pea, wheat, mycoprotein, and algae-based proteins are being explored to enhance protein quality and functionality.

Advanced processing techniques, including high-moisture

extrusion and shear cell technology, have been instrumental in improving the fibrous texture and water-holding capacity of plant proteins, making them more meat-like. Novel structuring methods such as 3D food printing are being investigated to achieve greater control over texture and composition. Additionally, emulsion and encapsulation technologies are being utilised to mimic the fat distribution and juiciness of conventional meat.

Despite these advancements, challenges remain in optimising sensory attributes, amino acid profiles, and large-scale production efficiency. The next phase of innovation will focus on integrating

precision fermentation, cell-based scaffolding to enhance product quality and sustainability. Further research into bioactive fortification, probiotics, and dietary fibre incorporation could improve the health benefits of plant-based meats. As plant-based meat alternatives continue to evolve, interdisciplinary research and technological

advancements will be key to overcoming current limitations and expanding their market potential.

Keywords: Plant-based meat, Protein alternatives, High-moisture extrusion, 3D printing, Encapsulation

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Abstract No.: 65

Development and Physico-Chemical Analysis of Gluten Free Baked Mathri

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ABSTRACT

Introduction: The growing incidence of gluten intolerance and the increasing demand for healthier, functional snacks have emphasised the need for innovative gluten-free product development. Traditional mathri, a widely consumed Indian savory snack, is primarily made with wheat flour, making it unsuitable for individuals with gluten-related disorders. This study aims to develop a gluten-free baked mathri by combining oat flour, corn flour, and bajra flour, while incorporating natural colourants such as beetroot powder, spinach powder, turmeric powder, and carrot powder to enhance both its nutritional profile and visual appeal.

Aim: This study aims to develop and assess gluten-free baked mathri by examining its physicochemical properties, including proximate composition (moisture, protein, fat, fibre, carbohydrates), antioxidant activity, and colour variations influenced by natural pigments. Additionally, the research evaluates sensory acceptability to determine the most optimal formulation for commercial application.

Materials and Methods: Methodology for Gluten-free mathri was formulated using oat flour, corn flour, and bajra flour in predefined ratios. To achieve colour variations, beetroot powder, spinach

powder, turmeric powder, and carrot powder were incorporated. The samples underwent physicochemical analysis, which included assessing moisture content, macronutrient composition (protein, fat, fibre, carbohydrates), antioxidant activity, and instrumental colour parameters. A trained sensory panel conducted evaluations using a nine-point hedonic scale, rating appearance, texture, taste, crispiness, colour, and overall acceptability. Statistical tools were applied to analyse the influence of natural colourants on the mathri quality attributes.

Results: The research is still in progress. It is anticipated that incorporating natural antioxidants such as beetroot, spinach, turmeric, and carrot powder will have a notable impact on the physicochemical properties, antioxidant activity, and sensory attributes of gluten-free baked mathri. Certain antioxidant combinations are expected to enhance nutritional value while preserving consumer acceptability, resulting in a visually appealing and functional gluten-free snack.

Conclusion: The final findings will provide valuable insights into the commercial viability of these formulations.

Keywords: Gluten-free, Baked mathri, Natural colourants, Physicochemical analysis, Sensory evaluation

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Extraction of Hydroxycitric Acid from Dried Kokum Rind and Its Evaluation

SUBHANSHU¹, LAKHVINDER KAUR²

ABSTRACT

Introduction: Hydroxycitric Acid (HCA), a key bioactive compound in *Garcinia indica* (kokum), is widely studied for its potential in weight management, lipid metabolism, and antioxidant properties. Extracting HCA efficiently from dried kokum rind is crucial for its application in the food and nutraceutical industries.

Aim: This review explores various extraction methods of HCA, their efficiency, and its evaluation for functional applications.

Methods: Traditional solvent extraction, ultrasound-assisted extraction, and supercritical fluid extraction are compared based on yield, purity, and sustainability. Analytical techniques such as high-performance liquid chromatography (HPLC) and spectrophotometry are highlighted for HCA quantification.

Results and Discussion: Studies suggest that extraction efficiency depends on solvent type, temperature, and processing conditions. HCA demonstrates anti-obesity, anti-inflammatory, and antioxidant potential, making it valuable for food fortification and pharmaceutical applications. However, stability and bioavailability remain challenges, requiring further research into formulation strategies.

Conclusion: Optimising eco-friendly extraction techniques and improving bioavailability can enhance the commercial viability of HCA from kokum. This review provides insights into technological advancements, challenges, and prospects for its application in functional foods and nutraceuticals.

Keywords: Hydroxycitric acid, *Garcinia indica*, Functional foods, Nutraceuticals

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Role of Neuromuscular Electrical Stimulation in Managing Diabetic Neuropathy: A Narrative Review

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ABSTRACT

Introduction: Diabetic Neuropathy (DN) is a prevalent complication of diabetes mellitus, leading to chronic pain, muscle weakness, and reduced quality of life. Neuromuscular Electrical Stimulation (NMES) has gained attention as a non-pharmacological intervention for managing DN symptoms. NMES is used to enhance muscle function, improve circulation, and support rehabilitation efforts in individuals with DN. However, further research is required to establish its clinical utility and optimise its application in patient care.

Aim: This narrative review aims to synthesise recent findings on the role of NMES in managing pain, improving strength, and enhancing the quality of life in patients with diabetic neuropathy.

Methodology: A literature review was conducted using peer-reviewed studies, systematic reviews, and Randomised Controlled Trials (RCTs) published in the last five years. The search was performed in databases such as PubMed, Scopus, and Google Scholar, focusing on studies evaluating the therapeutic benefits of NMES in diabetic neuropathy management.

Results: Recent studies highlight that NMES enhances muscle function and improves mobility by increasing muscle activation and circulation. Research has demonstrated its effectiveness in stimulating neuromuscular pathways, leading to improved strength and functional capacity. NMES has also been found to support sensory feedback mechanisms, potentially contributing to pain relief and improved motor control in individuals with DN. These findings

suggest that NMES may be an effective intervention for improving mobility and quality of life in patients with diabetic neuropathy.

Conclusion: NMES holds promise for managing diabetic neuropathy symptoms. It is particularly effective for enhancing muscle strength, mobility, and functional recovery. Further studies should explore optimal protocols for NMES application to maximise its therapeutic benefits.

Implication: Healthcare professionals should consider integrating NMES into rehabilitation programmes for individuals with diabetic neuropathy. A patient-specific approach in utilising NMES may help improve physical function and quality of life.

Keywords: Diabetic neuropathy, Neuromuscular Electrical Stimulation, Pain management, Muscle strength, Rehabilitation

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Abstract No.: 68

Formulation and Characterisation of Kulfi Using Sesame Milk and Dragon Fruit Pulp

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ABSTRACT

Plant-based innovations are gaining traction worldwide, driven by sustainability and health concerns. Kulfi, a traditional Indian frozen dessert, can be adapted to align with this trend, offering a plant-based alternative that caters to a growing market of health-conscious and lactose-intolerant consumers. Application of plant-based milk, as the source which provides plant proteins and lipids in kulfi, not only incorporates the nutritional values and health-promoting effects of plant compounds into kulfi but also does lead to the production of a novel product with specific properties such as lactose-free products, which could be attractive and useful for consumers. Plant based milk is free of cholesterol and has unsaturated fats which increase the health of the cardiovascular system. Studies indicate that a significant percentage of the Indian population is lactose

intolerant, making plant-based alternatives attractive. Plant-based options are also more efficient in terms of emissions, land use, and water usage. Plant-based kulfi can be made using plant-based milk alternatives, such as soy milk, almond milk, and clove oat milk, and can be fortified with essential nutrients to match the nutritional profile of traditional dairy-based kulfi. The development of plant-based kulfi not only addresses health concerns but also aligns with the increasing demand for sustainable and environmentally friendly food options. Plant-based alternatives are becoming increasingly common, this presents an opportunity to innovate and introduce plant-based kulfi to a broader audience, offering a novel and sustainable twist on a classic dessert.

Keywords: Plant-based, Kulfi, Lactose-free, Sustainability, Health concerns, Plant-based milk, Innovation, Frozen dessert

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Bioactive-Infused Candies: A Novel Approach to Functional Confectionery

PARUL CHITKARA¹, SARUSHI RASTOGI²

ABSTRACT

The confectionery market is shifting away from conventional sweet candies, with increased interest in health-focused formulations. Of these new developments, bioactive-infused candies present an exciting path toward the delivery of functional benefits while preserving consumer attractiveness. Bioactive-infused candies incorporate bioactive ingredients like polyphenols, probiotics, vitamins, and peptides, which are responsible for a range of health benefits such as enhanced digestion, boosted immunity, and antioxidant activity. Bioactive delivery in the form of candies has various benefits. Their universal acceptability across all ages, easy consumption form, and long shelf life make them a perfect vehicle for functional ingredients. Moreover, the controlled release of bioactives can improve their bioavailability, leading to better absorption in the

body. Sugar-free and low-calorie versions further boost the health appeal of these candies, appealing to consumers who desire less sugar consumption. Natural sweeteners, prebiotic fibres, and plant-based ingredients all help make these products nutritious and tasty. The increasing need for functional foods harmonizes with the emerging market of bioactive-enriched candies, opening doors for innovation in the confectionery industry. With ongoing improvements in food technology, these new products can help fill the gap between enjoyment and health, providing a delicious yet healthy snacking option. As consumers seek healthier choices, bioactive-infused candies represent a transformative step in reimagining confectionery beyond mere sweetness.

Keywords: Bioactives, Functional Confectionery, Nutritional Benefits, Probiotics, Antioxidants, Plant-Based, Health-Enhancing, Clean-Label

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Effectiveness of Muscle Energy Technique vs Proprioceptive Neuromuscular Facilitation in Mechanical Low Back Pain

DEEPIKA BAGHEL¹, IRSHAD AHMAD²

ABSTRACT

Introduction: Low back pain is a major cause of physical disability in the world. The origin of this condition can be due to different causes, with a specific cause or of unknown mechanical factor. However, fatigue of the trunk muscles, specifically the lower back, is now considered as one of the main risk factors associated with origin of low back pain and disabilities.

Aim: Thus, this review aims to explore recent literature focusing on evaluating the effectiveness of manual techniques like MET as compared to PNF in low back pain.

Methodology: Articles were searched from 2014 to 2024 through electronic search engines such as PubMed, google scholar using

key words like low back pain, MET, PNF, pain, flexibility, functional performance. The studies published in English language and with full articles were included in the review. Case studies and case series were excluded from the review process.

Result: A total of 60 articles were present for the screening review out of which 6 studies matched with our inclusion criteria. 2 studies shows that METs were more effective than PNF stretching in managing the symptoms of Low back pain. Other 2 studies suggested that METs provided greater improvements in reducing pain, increasing flexibility, and improving functional performance compared to PNF stretching. Later on, another 2 studies have suggested that both METs and PNF stretching are valuable in

restoring functional movement patterns in conditions involving low back pain and muscle tightness.

Conclusion: The studies concluded that the MET is more effective compared to PNF treating patients with low back pain. Both MET

alone and MET combined with PNF shows effectively improve pain, functional performance, improving flexibility in patients with low back pain.

Keywords: Muscle energy technique, PNF, Mechanical low back pain

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Abstract No.: 71

Development of Biscuits Using Germinated Amaranth Flour and Rice Bran Flour: A Review

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ABSTRACT

Introduction: The demand for functional and nutritious baked products is increasing due to growing health consciousness. Amaranth (*Amaranthus spp.*) and rice bran are nutrient-dense ingredients, rich in proteins, dietary fibre, and bioactive compounds. Germination enhances the bioavailability of essential nutrients in amaranth, while rice bran provides dietary fibre and antioxidants. This review explores the potential of incorporating Germinated Amaranth Flour (GAF) and Rice Bran Flour (RBF) into biscuit formulations for improved nutritional and functional properties.

Aim: To evaluate the impact of GAF and RBF incorporation on the nutritional, sensory, and functional properties of biscuits and discuss the challenges and opportunities in their commercial development.

Methodology: A systematic review of existing studies on biscuit formulation using GAF and RBF was conducted. Research focusing on proximate composition, physicochemical properties, sensory

evaluation, and storage stability was analysed. The effects of varying flour ratios, baking conditions, and fortification techniques were also reviewed.

Results and Discussion: Studies indicate that biscuits enriched with GAF and RBF exhibit higher protein, fibre, and antioxidant content compared to conventional wheat-based biscuits. Germination improves protein digestibility and mineral bioavailability, while rice bran enhances fibre content and oxidative stability. However, challenges such as gluten-free texture modification, sensory acceptability, and shelf-life optimisation require further research.

Conclusion: GAF and RBF offer significant potential for developing nutritionally enhanced biscuits. Future research should focus on optimising formulation strategies, consumer acceptability, and large-scale production to promote healthier bakery products.

Keywords: Germinated amaranth, Rice bran flour, Functional biscuits, Bioavailability, Dietary fibre, Fortification

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Effectiveness of Brain Gym Exercises on Cognition and Quality of Life Among Diabetic Individuals: A Narrative Review

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ABSTRACT

Introduction: There are currently 246 million people with diabetes worldwide, and by 2025, that number is projected to rise to 380 million, accounting for 7.1 percent of all adults. Cognitive decline and risk of dementia have been linked to diabetes. Diabetes-related changes in the cerebral microvasculature effect in cognitive decline. It is crucial to maintain general health in order to safeguard brain function and lower the risk of cognitive impairment.

Aim: This narrative review synthesises recent research on the effectiveness of brain gym exercises on cognition and quality of life among diabetic individuals. It explores the impact of brain gym exercises on prevention of cognitive impairment.

Methodology: A literature search was performed using Google Scholar, PubMed, Scopus database. The MeSH term used were “diabetes”, “brain gym exercises”, “cognition”. Peer-reviewed journal articles, Randomised Controlled Trials (RCTs), systematic reviews, and meta-analyses from the previous five years were the main focus of a narrative review. A total of more than 30 articles

showed up in which it is mentioned on the basis of eligibility criteria. The duration of intervention varied across studies, depending on the rehabilitation protocol used. These articles were reviewed in a narrative way. Studies evaluating the effects of brain gym exercises on cognition and balance in diabetic individuals.

Result: The mechanism that occurs is through increased brain volume and blood flow in physical exercise that can improve brain function and maintain neuroplasticity. As a result, this review appears to show significant improvement in the cognition, activities of daily living and quality of life.

Conclusion: Cognitive exercises are an essential intervention for improving diabetics’ quality of life, balance, and cognitive function. It can greatly enhance cognitive function and lower the risk of falls when incorporated into rehabilitation programmes.

Implication: Brain Gym Exercises enhances help manage blood sugar levels, reduce stress, and improve overall well-being, contributing to a better quality of life.

Keywords: Diabetes, Brain gym exercises, Cognition

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Ayurvedic Insights into Paediatric Nutrition: A Holistic Approach to Child Health

ANUSRI PRADEEP¹, LEKSHMI MK²

ABSTRACT

Introduction: Under-nutrition during the fetal period, caused by placental, maternal, or fetal factors, can lead to Intrauterine Growth Restriction (IUGR), impaired organogenesis, and low birth weight. Persistent undernutrition during infancy increases the risk of growth

failure, Failure To Thrive (FTT), and long-term metabolic disturbances into adulthood. Ayurvedic approaches can make tremendous inputs in this scenario clarified through various evidence based scientific studies.

Aim: This paper aims to explore the Ayurvedic holistic approach

in addressing contemporary health challenges, with a focus on fostering a healthier and more prosperous future.

Materials and Methods: Our literature review, which included a thorough search of Ayurvedic texts, textbooks and online databases like Scopus and PubMed, aimed to shed light on the concept of Paediatric nutrition in Ayurveda for ensuring meticulous growth and development of the children.

Results: Nutrition and growth and development is mutually contributing to each other and it can make significant changes. Priyalamajjadi modaka and Sreeratna modaka contributing significant changes in the anthropometrical parameter with a significant value of $p < 0.05$.

Conclusions: Ayurveda considers Ahara as *Trayopasthambha* and plays key role in nourishing the *Sharira*, *Mana*, and *Atma* and it offers valuable insights into the systematic and scientific approach to infant nutrition. So, failure to thrive can be sort out by using Ayurvedic concepts.

Implications: The integrative management of the nutrition deprivation among children below 5 years and failure to thrive through Ayurvedic approaches will be contributory for the current scenario.

Keywords: Failure to thrive, Ahara, Integrative, Ayurveda

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Abstract No.: 74

Ayurveda and Immunity: Ancient Wisdom for Modern Wellness

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ABSTRACT

Introduction: Immunity, or Vyadhikshamatva in Ayurveda, refers to the body's ability to resist and recover from diseases, representing acquired resistance against infections and injuries caused by micro-organisms. The immune response, triggered by foreign antigens, is categorised into innate and acquired immunity. Innate immunity, an inborn and genetically inherited defence, provides broad-spectrum resistance, whereas acquired immunity develops through antigen exposure (infections) or antibody transfer (vaccination), offering specific and adaptive protection.

Aim: This study aims to examine the Ayurvedic concepts of immunity (Vyadhikshamatva, Bala, and Ojas) with integration with yoga, pranayama, Ayurvedic formulations, swarnaprasana, pragarayoga, lifestyle modifications on immune resilience, ultimately contributing to the development of an evidence-based Ayurvedic treatment protocol.

Methodology: A comprehensive literature review was conducted to explore the concept of immunity through the Ayurvedic principles. This involved an extensive study of classical Ayurvedic texts, standard medical textbooks, and peer-reviewed journals from online databases such as Scopus and PubMed. The review aimed

to provide a clear understanding of immunity in Ayurveda, helping the development to construct an Ayurvedic treatment protocol.

Results: A statistically significant improvement ($p < 0.001$) was observed in immunity parameters following adherence to Ayurvedic concepts that results in strengthening immunity and reducing susceptibility to infections.

Conclusion: The integration of Yoga, Pranayama, Swarnaprasana, and Prakara Yoga, along with Ayurvedic formulations, plays a pivotal role in modulating immunity and preventing recurrent respiratory tract infections in children. With the increasing focus on immune strength in combating diseases and immunological disorders, Ayurveda offers a comprehensive perspective through Vyadhikshamatva, Ojas, and Bala. These principles emphasise the interplay between immunity and lifestyle factors such as Dinacharya (daily regimen), Ritucharya (seasonal regimen), Ahara-Vihara (diet and lifestyle), psychological well-being and role of rasayana.

Implications: Integrative health management, combining Ayurveda with modern medical approaches, holds great potential for future generations, benefitting both children and adults.

Keywords: Immunity, Vyadhishamatva, Ayurveda, Yoga, Pranayama, Pragarayoga, Swarnaprasana, Rasayana

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Mapping the Applications of Wearable Technology in the Management of Knee Osteoarthritis: A Scoping Review

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ABSTRACT

Introduction: Knee Osteoarthritis (KOA) is a major cause of disability worldwide affecting gait, stability, balance, physical activity and ultimately quality of life. Wearable technology is an emerging tool for assessment and real-time remote monitoring in the rehabilitation of KOA. The extent of research on its applications, effectiveness, availability and clinical integration is still limited.

Aim: To identify the types of wearable devices and analyse their applications and effectiveness in KOA rehabilitation.

Methods: Literature search conducted across Pubmed, Scopus, IEEE Xplore and Google scholar with keywords: 'wearable technology,' 'knee osteoarthritis,' 'remote monitoring,' and 'smart devices' yielded 1226 articles. After duplicates removal, 751 articles were screened based on inclusion criteria: RCT, cross-sectional, cohort and experimental studies focusing on wearable technology applications in KOA published in English between 2014-2024. Studies using AI-based diagnostics without wearable rehabilitation applications, non-KOA population and surgical interventions were excluded. Ultimately, 9 studies after full text screening were included and analysed for wearable device types, clinical applications and improvement in patient's outcomes.

Results: Smart insoles, motion sensors, accelerometers, knee monitoring devices and smart watches were primary wearable devices identified in studies. They were implemented for real time symptom tracking, assessment, physical activity monitoring and rehabilitation feedback. Improvement in mobility, pain and adherence to rehabilitation were seen in some studies while others identified challenges related to useability, patient compliance and long-term effectiveness.

Conclusion: Wearable devices in KOA management emphasised on objective assessment and personalised rehabilitation. However, long term adherence, accuracy and clinical integration are still the primary challenges. Future research should focus on standardisation of wearable-based assessments and their integration in clinical protocols.

Implications: Findings of this review support the need for user-friendly, clinically validated and adaptable wearable devices to enhance patient outcomes. It encourages clinicians to incorporate wearable devices in rehabilitation.

Keywords: Wearable technology, Knee osteoarthritis, Remote monitoring, Smart devices

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Development and Evaluation of Black Garlic Powder in Mushroom Instant Soup Premix

ARYAN RAWAT¹, SARUSHI RASTOGI²

ABSTRACT

The increasing demand for functional and convenient food products has led to the development of innovative food items that combine nutritional benefits with ease of preparation. One such development is the incorporation of black garlic powder into a mushroom instant

soup premix, aimed at enhancing both the flavour profile and health benefits of the final product. Black garlic, known for its unique taste, rich antioxidant content, and potential health-promoting properties, has been explored as a functional ingredient.

This study focuses on the development of an instant soup premix that

incorporates black garlic powder along with mushrooms, a popular functional food rich in vitamins and minerals. The process involves selecting optimal proportions of black garlic powder and mushroom powder to balance flavour, texture, and nutritional content. The premix undergoes rigorous sensory evaluation to assess attributes like taste, aroma, appearance, and overall acceptability.

In addition to sensory evaluations, the study also includes a nutritional analysis to determine the antioxidant activity, bioactive compounds, and other health benefits of the soup premix. The results are compared with traditional instant soup products to highlight the potential advantages of the black garlic-infused

version. Furthermore, the shelf-life stability of the premix is evaluated to ensure its longevity and convenience as a ready-to-use food product.

Overall, the development of black garlic powder-based mushroom instant soup premix offers a promising product that combines convenience with enhanced functional benefits, catering to the growing demand for healthier and innovative food solutions. The evaluation results demonstrate its potential as a market-ready product with significant consumer appeal.

Keywords: Black garlic powder, Mushroom instant soup premix, Functional food, Nutritional benefits, Antioxidants

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Abstract No.: 77

Integrative Management of Paediatric Behavioural Disorders with Ayurveda: A Case Series

LEKSHMI MK¹, SHEBA²

ABSTRACT

Introduction: Ayurveda, the time-tested Indian system of medicine, has its own unique outlook and has formulated a management package which has much potential in correcting the functional impairment of the brain, thereby triggering the motor, social, communicative and behavioural outputs. This involves muscle relaxants, digestive and metabolic correctives, speech promoters, emotional equilibrators, hyperactivity regulators, brain boosters and so on. Procedure based therapies like Sirodhara, Nasyam, Siropelam ensure promising results in children. Physiotherapy, speech and behavior therapy go in hand with the Classical Ayurvedic management.

Aim: Behavioural disorders in children are on the rise in the millennium. 1 in 6 U.S. children aged 2-8 years (17.4%) had a diagnosed mental, behavioural, or developmental disorder. The major neurodevelopmental behavior disorders in children as per Diagnostic and Statistical Manual of Mental Disorders (DSM-5) are Attention-Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), learning disabilities, intellectual disability and conduct disorders, which does not have a proper cure.

Method: The patients admitted in the in-patient department of the tertiary Ayurvedic centre for ADHD, ASD and conduct disorders were managed with internal medicines and external therapies. The pre-post evaluation of 20 patients each of ADHD, ASD and conduct disorders after treatment was done using Conners rating scale, Autism treatment evaluation checklist and Child behaviour checklist.

Results: In ADHD and ASD, the statistical analysis using Wilcoxon signed rank test showed significant improvement with $p < 0.001$. The conduct disorders showed clinical improvements, but was statistically insignificant.

Conclusion: The improvements may be due to the combined action of the internal medicines, external procedures and rehabilitative therapies by sensory integration, refining gut micro biome and harmonising neurotransmitters.

Implications: The integrative management of the above conditions with Ayurveda and rehabilitative therapies will be a boon to the suffering children and their parents.

Keywords: Ayurveda, Integrative, behavioural disorders, ADHD, Autism

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Development of Antioxidant-Enriched Herbal Yogurt: A Review

KASHISH YADAV¹, LAKHVINDER KAUR²

ABSTRACT

Introduction: The rising interest in functional foods has led to the incorporation of medicinal herbs into dairy products, enhancing their nutritional and therapeutic value. Herbal yogurt, enriched with antioxidants from natural plant extracts, offers potential health benefits, including improved gut health, oxidative stress reduction, and immune modulation.

Aim: This review explores the development, antioxidant potential, and challenges in formulating herbal yogurt.

Methodology: A systematic review of research articles was conducted, focusing on the selection of antioxidant-rich herbs such as *Tulsi* (*Ocimum sanctum*), *Ashwagandha* (*Withania somnifera*), *Moringa* (*Moringa oleifera*), and *Turmeric* (*Curcuma longa*). Various extraction techniques, including aqueous and ethanolic methods, were analysed for their efficiency in preserving bioactive compounds. The impact of herbal fortification on yogurt quality, antioxidant activity (DPPH, FRAP assays), sensory attributes, and probiotic viability was reviewed.

Results & Discussion: Studies indicate that herbal incorporation enhances the antioxidant activity of yogurt without significantly compromising its texture and sensory attributes. Polyphenols and flavonoids contribute to oxidative stability and improve the functional properties of yogurt. However, variations in microbial compatibility, taste acceptability, and formulation standardisation remain challenges. Optimising the concentration of herbal extracts is crucial to maintaining probiotic viability and consumer appeal.

Conclusion: Herbal yogurt presents a promising functional dairy product with potential health benefits. Future research should focus on optimising formulation techniques, assessing long-term stability, and conducting clinical studies to validate health claims. This review provides insights into the technological advancements and challenges in developing antioxidant-enriched herbal yogurt.

Keywords: Herbal yogurt, Antioxidants, Probiotics, Functional food, Polyphenols, Fortification

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Role of Balance Training in Enhancing Gait Speed and Postural Control in Elderly with Mild Cognitive Impairment: A Narrative Review

ATIYA SIDDIQUI¹, PRIYANKA SETHI², NIMISHA CHAWLA³, MEHUL JAIN⁴

ABSTRACT

Introduction: Ageing leads to physiological changes that impair balance, gait speed, and postural control. These issues are particularly pronounced in individuals with Mild Cognitive Impairment (MCI), increasing their risk of falls and reducing mobility. Balance training has emerged as an effective intervention to enhance postural stability and functional movement, addressing both physical and cognitive deficits in this population.

Aim: This narrative review synthesises recent research on the

effectiveness of balance training in improving gait speed and postural control among elderly individuals with MCI. It explores the impact of structured balance interventions on mobility and fall prevention.

Methodology: A literature review was conducted using peer-reviewed journal articles, Randomised Controlled Trials (RCTs), systematic reviews, and meta-analysis from the last five years. Studies evaluating the effects of balance training on gait speed and postural control in elderly individuals with MCI were selected from databases such as PubMed, Scopus, and Google Scholar.

Results: Recent studies highlight that balance training significantly improves postural control, reduces sway, and enhances stability in older adults with MCI. Structured programmes incorporating dynamic stability tasks, single-leg stance exercises, and reactive balance training demonstrate effectiveness in mitigating fall risks. Additionally, motor-cognitive interventions that combine balance exercises with cognitive tasks show promise in improving both mobility and executive function.

Conclusion: Balance training is a critical intervention for enhancing gait speed and postural control in elderly individuals with MCI. Its

incorporation into rehabilitation programmes can significantly improve mobility, reduce fall risks, and support cognitive function. Future research should explore optimal training intensities and long-term benefits.

Implication: Healthcare professionals should prioritise balance training in physiotherapy programmes for older adults with MCI. Developing structured, evidence-based protocols can improve functional independence and quality of life in this population.

Keywords: Balance training, Gait speed, Postural control, Mild cognitive impairment, Fall prevention, Elderly, Cognitive function

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Abstract No.: 80

Development and Physicochemical Analysis of Value-Added Product (Savoury Biscuit) Using Iron-Rich Garden Cress Seeds

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ABSTRACT

Introduction: This study focuses on the development and physicochemical analysis of a value added savory biscuit incorporating iron-rich garden cress seeds (*Lepidium sativum*) as a functional ingredient. Garden cress seeds, known for their high iron content, are explored as a potential natural fortification source to combat iron deficiency anaemia.

Aim: The primary objective was to develop a nutritious biscuit with enhanced iron bioavailability while maintaining desirable sensory attributes such as taste, texture, and appearance.

Materials and Methods: Garden cress seeds, are underutilised in food processing despite their nutritional benefits. By incorporating garden cress seed powder into biscuit formulations, this study seeks to develop a nutritious product that can be easily integrated into daily diets. The physico-chemical analysis of the biscuits included

measurements of moisture content, protein, fat, fibre, carbohydrate, and iron content. The moisture content was analysed to assess shelf-life stability, while the protein, fat, fibre, and carbohydrate levels were determined to ensure that the biscuits remained balanced in terms of macronutrients.

Results: The study demonstrates that the inclusion of garden cress seeds in biscuits can provide a novel and effective method for improving the nutritional profile of bakery products. This study also highlights the potential of using garden cress seeds as a sustainable, cost-effective fortification agent. Garden cress is relatively inexpensive and making it an ideal ingredient for fortifying in commonly consumed foods like biscuits, which are popular and widely consumed across different age groups.

Keywords: Fortification, Garden cress seeds, Physicochemical, Inexpensive, Savoury

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A Literature Review of Scapular Stabilisation Exercises on Primipara and Multipara Lactating Mothers with Scapular Dyskinesia

AKANKSHA¹, KSHITIJA BANSAL²

ABSTRACT

Introduction: Scapular dyskinesia, characterised by abnormal scapular movement, is a common issue among lactating mothers due to prolonged breastfeeding postures, repetitive upper limb activities, and musculoskeletal changes during pregnancy. These factors contribute to muscle imbalances, pain, and functional limitations. Scapular stabilisation exercises (SSEs) are widely used in rehabilitation to improve scapular control, reduce pain, and restore proper biomechanics. However, limited research has focused on the impact of SSEs on primipara (first-time mothers) and multipara (mothers with multiple childbirths) lactating women suffering from scapular dyskinesia.

Aim: This literature review aims to evaluate the effectiveness of SSEs in addressing scapular dyskinesia among primipara and multipara lactating mothers. It explores existing research on SSEs, their impact on pain relief, muscle activation, and postural correction, and identifies gaps in current knowledge.

Materials and Methods: A comprehensive search was conducted using databases such as PubMed, Google Scholar, and Scopus. Studies focusing on scapular stabilisation exercises, postpartum

musculoskeletal disorders, and lactating mothers with scapular dysfunction were reviewed and used validated measures such as VAS scale, Lateral scapular slide test, Scapular balance angle and Scapular dyskinesia test. Exclusion criteria include non-specific shoulder conditions, any shoulder surgery and languages other than English.

Results: The findings indicate that SSEs improve scapular mechanics, enhance muscle activation, improve posture, reduce pain around neck and shoulder in individuals with scapular dyskinesia. Multipara mothers exhibit higher musculoskeletal strain compared to primipara mothers, suggesting potential need for modified exercise protocols.

Conclusion: SSEs show promising benefits for managing scapular dyskinesia in lactating mothers, yet further clinical studies are required to establish specific guidelines for this population.

Implications: Incorporating SSEs into postpartum care programmes may help prevent chronic musculoskeletal issues in lactating mothers, improving their overall well-being.

Keywords: Scapular Stabilisation, primipara, Multipara mothers, Dyskinesia

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Development, Organoleptic, and Nutrients Study of NutriBars

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ABSTRACT

Introduction: NutriBars have gained popularity as convenient nutritional supplements designed to provide essential macronutrients and micronutrients in a compact form. They are commonly used for meal replacement, weight management, and energy boosting, particularly among athletes and health-conscious individuals. These bars typically contain proteins, carbohydrates, fibres, and healthy

fats, which contribute to balanced nutrition and satiety.

Aim: The primary objective of this research is to develop nutria bars in different variants and evaluate the sensory and nutritional values of the same.

Methodology: In this study, NutriBar variants (salted butter and peanut butter) were developed using dry fruits. Sensory evaluation through Hedonic Scale and nutrient composition using AOAC

methods was conducted for the developed nutribars.

Results: The results of sensory evaluation studies showed that Sample 1 (Salted butter NutriBar) was liked more in comparison to the one made by using peanut butter. The nutritive value of the Sample 1 NutriBar was analysed, revealing the following composition: 551 kcal energy (27.55% RDA), total fat 36.68g (54.75% RDA), saturated fatty acids 6.44g (6.44% RDA), trans fatty acids <0.02g (<0.1% RDA), protein 16.80g (16.80% RDA), carbohydrates 38.42g (38.42% RDA), sodium 92mg, and sugar 20.15g. These values indicate a high-energy, protein-rich composition, making it a suitable option for individuals requiring sustained energy and nutrition.

Conclusion: The study confirms that the developed NutriBars (both variants) offer a nutrient-dense, energy-rich option, supporting overall health and well-being. Their balanced composition makes them a practical choice for sustained energy and nutritional supplementation.

Implication: This study highlights NutriBars as a convenient, nutrient-dense option for individuals seeking balanced nutrition. The findings can guide food manufacturers in optimising formulations and assist health professionals in recommending NutriBars for energy needs, meal replacements, and dietary supplementation, promoting healthier eating habits and functional food innovation.

Keywords: Energy boosters, Hedonic scale, Weight management

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Abstract No.: 83

Recent Advancement in Physiotherapy for Treatment of Benign Paroxysmal Positional Vertigo: A Literature Review

NANCY JAIN¹, SUNITA KUMARI²

ABSTRACT

Introduction: This study focusing on innovative techniques such as vestibular rehabilitation with virtual reality (VR), BPPV simulation tools, and the universal repositioning maneuver VR-based interventions offer immersive and engaging environments to enhance patient outcomes, while simulation tools provide precise and controlled methods to aid in diagnosis and treatment planning. This review evaluates the efficacy and practicality of these techniques, providing evidence-based insights to improve clinical applications and patient-centered care.

Aim: Ultimately, the study highlights the significance of interdisciplinary collaboration in advancing physiotherapy practices and enhancing the quality of life for individuals suffering from BPPV.

Method: This review integrates findings from study focused on the treatment of bppv with application of virtual reality (VR)-based vestibular rehabilitation to address residual symptoms following canalith repositioning procedures. VR rehabilitation involved immersive and interactive exercises aimed at enhancing neural plasticity and balance function. The VR group demonstrated superior reductions in symptoms and improved balance compared to conventional approaches. The other recent treatment utilised 3D simulation technology to model otoconial debris movements during diagnostic and repositioning maneuvers. By incorporating fluid dynamics and 3D morphology of the inner ear, the simulation provided real-time visualisation of debris movements in the semicircular canals during maneuvers such as Epley and Semont.

New approach is Universal Repositioning Manoeuvre (URM) using a 3D biomechanical model to evaluate its potential to treat single and multicanal BPPV. The study simulated otolith repositioning from all semicircular canals to the utricle using a simplified, four-step sequence. The model demonstrated the effectiveness of the URM in resolving canalolithiasis of the posterior, anterior, and lateral canals, as well as multicanal cases.

Result: Recent advancements in BPPV management, including Virtual Reality (VR)-based vestibular rehabilitation, 3D simulation-guided maneuver analysis, and the Universal Repositioning Manoeuvre, have shown promising results. VR rehabilitation significantly reduces dizziness and enhances balance by engaging patients in interactive exercises. The 3D simulation models optimise diagnostic accuracy and improve maneuver efficacy. The Universal Repositioning Manoeuvre simplifies treatment, addressing single and multicanal BPPV in a streamlined, four-step sequence. These techniques reduce residual symptoms, treatment time, and patient discomfort, offering innovative and accessible solutions to improve outcomes in BPPV care.

Conclusion: The integration of novel techniques such as VR-based vestibular rehabilitation, 3D simulation-guided maneuvers, and the Universal Repositioning Manoeuvre represents a paradigm shift in the treatment of BPPV. These advancements simplify care, address complex cases like multicanal BPPV, and offer accessible options for patients with physical limitations. Together, they enhance therapeutic precision, efficiency, and patient adherence, contributing to superior long-term outcomes.

Implications: These advancements simplify BPPV treatment, enhance diagnostic accuracy, and improve accessibility for non-specialists and telehealth. They promise better patient outcomes, reduced healthcare costs, and improved adherence, setting a new standard in vestibular therapy.

Keywords: BPPV management, Vestibular rehabilitation, VR therapy, 3D simulation models, Universal repositioning manoeuvre, multicanal treatment, Otolith repositioning techniques, Innovative vestibular therapy

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Abstract No.: 84

Exploring the Efficacy of Capsular Stretching in Restoring Mobility in Adhesive Capsulitis: A Narrative Review

ANNU TANWAR¹, POOJA SHARMA²

ABSTRACT

Introduction: Frozen Shoulder also known as Adhesive Capsulitis is a common shoulder condition marked by pain and a gradual loss of shoulder movement. Capsular Stretching improves shoulder mobility, reducing stiffness and alleviating pain by enhancing joint elasticity and reducing restrictions in movement. The extent of research on its effectiveness and clinical integration is still limited.

Aim: To assess the existing literature on the effectiveness of Capsular stretching, identify the limitation of previous studies, and justify the need for further research.

Methods: A search was conducted on several databases such as Google Scholar, PubMed, and Scopus, from the year 2014 to 2024 by using keywords: "Adhesive Capsulitis", "Capsular Stretching", "mobility". 680 articles were identified. Using eligibility criteria 7 studies published in English in last 10 years focusing on Adhesive Capsulitis management were included and narratively analysed for key findings,

gaps and outcomes like pain relief, Range of Motion, functional disability. The articles were checked thoroughly and only full text articles were included for this review. The duration of intervention varied across studies, ranging from 3 to 6 weeks, depending on the rehabilitation protocol used. These articles were reviewed in a narrative way.

Results: As a result, this review appears to show significant improvement in the pain, ROM and functional mobility.

Conclusions: Capsular Stretching is an effective strategy for AC management. Recommendations should be directed towards the development of rehabilitation programmes that encompass these interventions to achieve superior clinical outcomes and patient satisfaction.

Implications: Healthcare professionals should consider integrating Capsular Stretching into rehabilitation programmes for patients with AC.

Keywords: Adhesive Capsulitis, Capsular Stretching, Mobility

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Expanding the Scope of Tele-Rehabilitation in Women's Health Issues: A Narrative Review of Patient Engagement and Technology Integration

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ABSTRACT

Introduction: Women's health issues, such as pelvic floor dysfunction, diastasis recti, dysmenorrhea, vaginismus and menopause-related conditions, are prevalent yet often under-addressed due to barriers like accessibility, stigma, and time constraints. Tele-rehabilitation has emerged as a progressive approach, offering accessible, cost-effective, and patient-centered care, especially in the post-COVID-19 era.

Aim: The primary objective of this review is to examine the role of tele-rehabilitation in addressing major women's health issues. Secondary objectives include exploring recent advancements in digital tools, evaluating their clinical effectiveness, and identifying gaps for future research.

Methods: A comprehensive literature search was conducted using databases such as PubMed, Scopus, and Google Scholar. Keywords included "tele-rehabilitation," "women's health," "pelvic floor dysfunction," "postpartum recovery," and "digital health." Studies published in the last five years from 2020 to 2025 were prioritised to ensure relevance to current advancements. Data were analysed thematically to identify key trends and insights and total full text 7 English articles are included in this review.

Results: Tele-rehabilitation has shown significant potential in improving access to care, enhancing patient adherence, and

providing tailored interventions for conditions like pelvic floor dysfunction, postpartum recovery, and chronic pain. Rehabilitation is changing as a result of digital technologies including wearable technology, virtual reality, and AI-driven apps that provide real-time feedback and customised programming. Key findings highlight the effectiveness of tele-rehabilitation in empowering women to take control of their health and bridging gaps in care.

Conclusion: Women's health concerns can be effectively addressed with tele-rehabilitation, which provides patient-centered, affordable treatments. Future studies should concentrate on improving these technologies, reaching underserved populations, and carrying out extensive clinical trials to confirm their long-term efficacy.

Implications: This study contributes to clinical practice by highlighting the potential of tele-rehabilitation to improve access to care and patient outcomes. It also informs policy-making by advocating for the integration of digital health solutions into women's health rehabilitation programmes. For educators, it underscores the need for training healthcare professionals in tele-rehabilitation techniques.

Keywords: Tele-rehabilitation, Women's health, Digital health, Pelvic floor dysfunction, Postpartum recovery

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Effects of Scapular Re-Positioning Interventions in Patients with Shoulder Impingement: A Literature Review Analysis

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ABSTRACT

Introduction: Shoulder Impingement Syndrome (SIS) occurs due to the compression of the rotator cuff tendon within the subacromial space, leading to pain and dysfunction. The biomechanics of the scapula and its stabilisation play a crucial role in maintaining the scapulohumeral rhythm. Therefore, strengthening and stabilising the scapula are essential for managing SIS effectively.

Aim: The review aims to explore the existing literature to check for the effects of scapular strengthening and stabilisation exercises on individuals with Shoulder Impingement Syndrome.

Methods: A comprehensive Literature search was conducted on Google scholar, Medline, Scopus and CINAHL using appropriate MeSH keyterms: "scapular re-positioning," "scapular muscle strengthening," "shoulder impingement," "subacromial impingement," and "supraspinatus tendinitis" This search yielded a total of 1042 articles after duplicates removal. Based on PICO eligibility criteria and after full text screening, 8 Randomised Control Trials published in English between 2014-2024 were ultimately selected for the review, focusing on scapular stabilisation and mobility in patients with shoulder impingement. The outcomes of

these studies emphasised mainly on Visual Analogue Scale (VAS), Shoulder ROM, Disabilities of the Arm, Shoulder and Hand (DASH) and scapular muscle strength. This review doesn't include a formal quality assessment of the studies, rather gives a broad overview of the literature.

Results: The findings indicate that interventions focusing on scapular positioning, including taping and stabilisation exercises, significantly reduce pain and improve shoulder function in patients with SIS.

Conclusion: Taping as an adjunct to Scapular stabilisation exercises leads to scapular repositioning with improved scapulo-humeral rhythm which alleviate pain, reduce disability and ultimately leads to an improvement in SIS.

Implications: Scapular stabilisation exercises can be incorporated into physiotherapy protocols to enhance scapular biomechanics and restore optimal scapulohumeral rhythm. Additionally, clinicians can consider integrating taping techniques for better pain relief and movement efficiency.

Keywords: Scapular strengthening, Scapular stabilisation exercises, Shoulder impingement, Subacromial impingement

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Efficacy of Exercise-Based Interventions in the Management of Upper Crossed Syndrome: A Literature Review

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ABSTRACT

Introduction: Upper Crossed Syndrome (UCS) is a musculoskeletal

disorder caused by muscle imbalances, leading to forward head posture, rounded shoulders, and scapular winging. It results from

hyperactivity of the upper trapezius, levator scapulae, pectoralis major, and suboccipital muscles, along with weakness in the lower trapezius, deep cervical flexors, and serratus anterior. Prolonged screen use and repetitive occupational movements further contribute to its prevalence.

Aim: This review evaluates the efficacy of exercise-based interventions, including muscle energy techniques (METs), neuromuscular and biomechanical exercises, National Academy of Sports Medicine (NASM)-based protocols, and stretching programmes in managing UCS symptoms.

Methodology: A literature review was conducted using databases such as PubMed, ScienceDirect, Scopus and Google Scholar. Keywords included "Upper Crossed Syndrome," "Neck Pain," "Physiotherapy Intervention," and "Posture." Inclusion criteria consisted of peer-reviewed studies published in the last 10 years, focusing on UCS and neck pain, while non-English articles, case reports, and unrelated studies were excluded.

Results: Studies indicate that stretching, METs, and segmental

mobilisation significantly alleviate neck pain and disability in UCS patients. METs enhance range of motion, while NASM-based protocols better address pain and functional limitations. Neuromuscular and biomechanical exercises improve scapular strength and posture. High UCS prevalence among athletes highlights the need for corrective training. Meta-analyses confirm that structured strength and stretching programmes, performed at least three times weekly for four weeks, improve posture and function.

Conclusion: Exercise-based interventions effectively enhance mobility, reduce pain, and correct postural imbalances in UCS. Tailored rehabilitation strategies incorporating METs, NASM-based protocols, and biomechanical exercises are recommended.

Implication: Healthcare professionals should implement targeted exercise programmes to restore muscle balance. Future research should explore long-term effectiveness and prevention strategies.

Keywords: Upper crossed syndrome, Neck pain, Physiotherapy intervention

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Abstract No.: 88

Development of Prediction Equation for Assessment of Footballer's Ankle in Professional Football Players

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ABSTRACT

Introduction: Ankle impingement is a clinical condition characterised by chronic pain and limited range of motion in the ankle joint due to soft tissue or osseous abnormalities. It commonly affects athletes and individuals with a history of ankle trauma. There is paucity of research in examining ankle impingement and potential risk factors.

Aim: This study aims to fill the gap between the risk factors and lack of clinical guidelines.

Methods: The participants enrolled in the study were assessed; to be placed in the symptomatic group, the subjects are required to have a positive Ankle Impingement evaluation and the absence of other symptoms of exercise-induced ankle pain. 240 participants in case and control group were compared and assessed using linear progressive analysis and univariate and multivariate analysis.

Result: Biomechanical abnormality of ankle excursion, femoral anteversion, hip excursion, knock knees OR bow knees, joint hypermobility, foot posture, Q-angle and Leg length discrepancy. The analysis revealed that lack of ankle dorsiflexion, hip eversion, joint hypermobility, exaggerated foot posture, extreme values of height of arches and large Q-angle predispose an individual to injury. The present study also highlights, statistical significance was established in Q angle value and femoral anteversion.

Conclusion: Various intrinsic parameters of anthropometric measurements, lower limb alignment, range of motion, functional performance, foot posture index were assessed, however, the study concluded that loss of dorsiflexion and lower limb alignment are primary risk factors.

Keywords: Ankle impingement, Chronic ankle pain, Markers of biomechanics of lower limb, Anthropometry, Ankle sprain, Ankle instability

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Abstract No.: 89

Future Prospects of Incorporating Date Seed Powder in Health Mix

PRIYANSHU SHARMA¹, SUNDUS NIDA²**ABSTRACT**

Introduction: The rising demand for functional foods highlights the need for nutrient-dense and sustainable ingredients. Date Seed Powder (DSP), a byproduct of date fruit processing, is a promising functional ingredient due to its high dietary fibre (56-70%), antioxidants (3100-4500 mg GAE/kg), and essential minerals like potassium, calcium, and magnesium. While DSP has been studied for its potential in baked goods and beverages, its application in health mix formulations remains largely unexplored.

Aim: To study the effect of incorporation of date seed powder in health mix.

Materials and Methods: This study explores the potential of incorporating DSP into a health mix containing ragi, maize, green gram, chickpea, peas, groundnut, almonds, cashew nuts, cardamom, and milk powder. Processing techniques such as roasting, grinding, and blending can enhance bioavailability and sensory appeal.

Results: Preliminary findings suggest DSP-enriched health mix formulations could significantly increase dietary fibre (20±0.03%) and total antioxidant capacity (28±0.05%) compared to conventional health mixes. Sensory analysis and shelf-life studies indicate good consumer acceptance and long-term stability.

Conclusion: Future research should optimise DSP inclusion levels for specific health benefits, such as gut microbiota modulation and glycaemic control. Its potential application in protein supplements, energy bars, and infant nutrition should also be explored. Additionally, advanced processing methods like encapsulation and bioactive compound extraction could improve DSP's functional properties. Valorising date seeds in food formulations promotes sustainability, reduces waste, and supports the circular economy in functional food development.

Keywords: Date seed powder, Functional health mix, Antioxidants, Dietary fibre, Waste valorisation

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Exploring the Relationship Between Lumbar Lordosis and Low Back Pain: Biomechanical, Clinical, and Research Perspectives

RASHMI KAUSHAL¹, NITESH MALHOTRA²

ABSTRACT

Introduction: People all around the world suffer from Low Back Pain (LBP), a common musculoskeletal condition that has serious socioeconomic repercussions. Among various biomechanical factors, lumbar lordosis plays a critical role in spinal load distribution and posture. However, its exact relationship with LBP remains debated, necessitating further investigation.

Aim: This study aims to explore the relationship between lumbar lordosis and LBP, examining anatomical, biomechanical, and clinical perspectives. It also highlights current treatment approaches and future research directions.

Materials and Methods: A thorough literature review was carried out with the aid of sources including Google Scholar, PubMed, and Scopus. Studies examining the biomechanics of lumbar lordosis, its variations, and their association with LBP were analysed. Both cross-sectional and longitudinal studies were included, along with reviews on rehabilitative interventions and surgical treatments.

Results: Findings indicate that deviations in lumbar curvature (hyperlordosis or hypolordosis) may contribute to abnormal spinal loading, leading to LBP. However, the association is not linear and depends on a number of variables, including posture, age, muscular strength, and degenerative changes. Rehabilitation programmes focusing on core stability, posture correction, and ergonomic interventions show promising outcomes, while surgical interventions remain reserved for severe cases.

Conclusion: Although lumbar lordosis plays a significant role in spinal biomechanics, its direct causative role in LBP remains inconclusive. Future research should focus on longitudinal studies, AI-driven diagnostics, and personalised rehabilitation strategies to enhance clinical outcomes.

Keywords: Lumbar lordosis, Low back pain, Spinal biomechanics, Postural alignment, Rehabilitation, Musculoskeletal disorders, Spinal stability

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Effectiveness of High-Intensity Laser Therapy on Upper Extremity Motor Impairment, Pain and Quality of Life in Chronic Stroke Survivors: A Pilot Study

MANU PATHANIA¹, NITESH MALHOTRA²

ABSTRACT

Background: Stroke is a sudden and rapidly progressing cerebrovascular disease that can be classified into ischaemic or

haemorrhagic types, with ischaemic stroke being more common. It is the second leading cause of death and third leading cause of death and disability. Upper extremity motor impairment is indeed a

common and significant consequence of stroke, affecting patients' mobility, daily activities, and overall quality of life.

Aim: The main aim of this study was to describe the effectiveness of High intensity laser therapy on upper extremity motor-impairment, pain and quality of life in chronic stroke survivors.

Method: Ten ischaemic chronic stroke patients with the age group 40-75 years (male/female) were randomly divided into two groups: Group 1 (study group, n=5) received 3 HILT sessions per week for four weeks in combination with therapeutic exercise sessions and Group 2 (control group, N=5) received 3 HILT sessions per week for four weeks in combination with therapeutic exercise sessions. Upper extremity motor impairment was evaluated with Fugl-Meyer Assessment of Upper Extremity (FMA-UE), shoulder pain assessment was done Visual Analogue Scale and quality of life was

assessed by stroke-specific quality of life scale at T0 and T1.

Results: The increase in FMA-UE score, decrease in VAS score and improved quality of life after the treatment was significant in the study group and control group in comparison with the pretreatment between-group comparison. The study group showed the significant improvement over the control group with respect to FMA-UE, VAS and SS-QOL score.

Conclusion: HILT in combination with therapeutic exercises provides better improvement than Sham HILT in combination with therapeutic exercises for upper extremity motor-impairment, shoulder pain and quality of life.

Keywords: High intensity laser therapy, Stroke, Upper extremity motor impairment, Quality of life, Shoulder pain in stroke

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Abstract No.: 92

Monk Fruit Sweetener as a Natural Alternative for Health-Conscious Consumers: A Review

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ABSTRACT

The quest for low-calorie sweeteners has fueled research into natural alternatives, with monk fruit sweetener, derived from the *Siraitia grosvenorii* plant, emerging as a promising candidate. This review aims to distill the current understanding of monk fruit sweetener's properties, nutritional benefits, and applications in food and beverage products, evaluating its viability as a sugar substitute. Monk fruit sweetener exhibits exceptional sweetness with minimal impact on blood glucose levels, notable antioxidant and anti-inflammatory properties, and potential applications in various food products, such as baked goods, beverages, and dairy products. Its

unique sweetness profile, 150-200 times sweeter than sugar, makes it an attractive option for food manufacturers. Additionally, monk fruit sweetener's potential health benefits, including weight management and improved glycaemic control, make it a compelling choice for health-conscious consumers. Overall, monk fruit sweetener presents a promising option as a sugar substitute, offering an attractive blend of sweetness, nutritional benefits, and potential health advantages, warranting further investigation to fully explore its applications and interactions with other food components.

Keywords: Monk fruit sweetener, sugar substitute, natural sweetener, low-calorie sweetener, food applications

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Brome-Aid: Nature's Own Healing

AKSHITA TYAGI¹, AARUSHI GOYAL²

ABSTRACT

A band-aid is a small adhesive bandage used to cover minor cuts, scrapes, or blisters on the skin. It typically consists of gauze pad and an adhesive backing. It protects wounds from dirt and bacteria, promotes healing, and reduces the risk of infection.

Brome-Aid is an innovative wound care solution designed to accelerate the healing process through the use of bromelain, a natural proteolytic enzyme derived from pineapple. Known for its potent anti-inflammatory and tissue-repairing properties, the bromelain in Brome-Aid helps to effectively reduce swelling, cleanse wounds by breaking down damaged tissue, and promote a more efficient healing environment. This next-generation bandage is designed for a range of injuries, from minor cuts and abrasions to more complex wounds requiring enhanced care. Brome-Aid's formulation ensures optimal enzyme activity while maintaining the safety and comfort of the user, reducing the risk

of infection and minimising discomfort associated with wound recovery.

Brome-Aid is easy to apply and incorporates a specialised delivery system to ensure that bromelain is released consistently over time, maintaining moisture balance and fostering tissue regeneration. Unlike traditional bandages, Brome-Aid provides a unique, all-natural alternative to synthetic wound care products, appealing to those seeking effective and nature-inspired healing solutions. It is particularly suitable for individuals prone to inflammation-related healing delays or those looking for a proactive approach to wound management. Brome-Aid represents a leap forward in bioactive wound care technology, merging science and nature to offer a reliable, efficient, and convenient option for everyday wound treatment.

Keywords: Brome-Aid, Bromelain, Pineapple, Bandage, Wound healing

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Preparation and Quality Evaluation of Banana Blossom Flour Incorporated Biscuits

PURUSHOTAM KUMAR RAY¹, MEHAK KATYAL²

ABSTRACT

The main aim of this study was to prepare biscuit with the incorporation of Banana Blossom Flour and to perform its sensory as well as physicochemical analysis. The wheat flour and banana blossom flour were mixed with variation at the proportion of 95:5, 90:10, 93:7, 100:0, 87:13, 85:15 and 80:20 labeled as samples A, B, C, D, E, F and G respectively, while sugar (30 g), fat (20 g), SMP (4 g), Baking powder (2.2 g), salt (0.3 g) and water (20 g) were kept constant for every formulation. The fat and SNF of SMP was found to be 0 and 94±0.25 respectively. The moisture content of sugar

used was found to be 0.16±0.01. Sample 'C' was considered best as per the acceptability by panelists and had crude fibre (%), calcium content (mg/100 g), potassium (mg/100 g), sodium (mg/100 g), crude protein (%), and carbohydrates (%) of 14.42±0.41, 274±0.03, 443±0.30, 112±0.20, 3.22±0.02 and 67.72±0.35 respectively. Increase in fibre content and minerals were seen in best sample product with the incorporation of banana blossom flour.

Keywords: Banana blossom, Biscuit, Nutritional composition, Minerals, Sensory evaluation

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Abstract No.: 95

Edi-Pack

SURBHI YADAV¹, VANSHIKA², LAKHVINDER KAUR³**ABSTRACT**

Edi-Pack is an orange peel and starch-based innovation which is enhanced with natural antimicrobial and antioxidant properties, biodegradable, utilises orange peel waste, alternative for single use plastic while remaining safe and edible which produces no waste. This work involves the development of a biodegradable edible film through the addition of potato starch and orange peel extract, emphasising the utilisation of natural and readily available materials to address issues related to environmental sustainability. The initial phase involves the systematic extraction and diligent preparation of raw materials. Potato starch is selected due to its biodegradability and film-forming characteristics. Orange peel extract is derived from the drying and grinding of peels, which include antimicrobial agents such as limonene and flavonoids. This provides the edible film with good mechanical properties for

packaging purposes, including flexibility and tensile strength, and also with natural antimicrobial effects. The applications are not only limited to edible food packaging. It can be used as a biofilm. In addition to serving as barriers, edible films possess the ability to substitute synthetically polymer films and, in comparison with more conventional, not very environment friendly packaging elements, feasibly reduces complexity and enhance recyclability. Edible films are typically treated with plasticisers to increase their pliability and toughness. Edible packaging made after optimisation has thickness 23 micron and water permeability 1.28g/m² day which can easily biodegrade in soil and has good water solubility. The shelf-life study showed that it can be stored at low temperature (-18°) and at room temperature (30°) for 28 days and more (shelf-life study is still going on) without any change in appearance, taste and texture.

Keywords: Antioxidant, Biodegradable, Plastic film

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