


3.2.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Year of publication	ISBN/ISSN number of the proceeding	Whether at the time of publication Affiliating Institution Was same Yes/NO	Name of the publisher
1	Prince Ahad Mir, Jasreen Uppal, Aneez Noor, Mohammad Ovais Dar, Roohi Mohi-ud- din, Adil Farooq Wali, Syed Ovaris and Reyaz Hassan Mir	Dihydropyrimidinones as potent anticancer agents	Recent advances of dihydropyrimidinone derivatives in cancer research	2023		Yes	Elsevier
2	Hardeep Kaur, Amandeep Singh, Hayat M Mukhtar, Harpreet Singh	Studies in natural product chemistry	Hybrid alkalooids: An approach toward development of better antimalarial therapeutics	2023		Yes	Academic Press, Elsevier, Netherlan d
3	Tjpreet Kaur, Aswani kumar sharma, Balbir singh, Amrit Pal singh	Biomedical Research Medicine and Disease	Role of Probiotics in the Prevention and Management of Obesity: What have we learned so far?	2023		Yes	CRC Press


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4	Jasjeet Kaur Narang, Anmol Dogra, Javed Ali, Sanjula Baboota, Harmanpreet Singh	Regulatory Affaris in the Pharmaceutical Industry	Drug regulatory affairs: an introduction	2022		Yes	
5	Tajpreet Kaur , Ravi Kumar Dhawan, Ashwani Kumar Sharma, Amrit Pal Singh.	Diabetes and Diabetic Complications	Pathophysiological Mechanisms and Potential Target Sites	2021	ISBN:978-1-53619-177-6	Yes	Nova Science Publishers
6	Nazia Banday, Prince Ahad Mir, Mudasir Maqbool, Rafia Jan, Nyira Shafi, Roohi Mohi-ud-din, Reyaz Hassan Mir	<i>Frontiers in Natural Product Chemistry</i>	Quercetin chemistry, Structural modifications, SAR studies and therapeutic applications: An update	2021		Yes	Bentham Science Publishers
7	Amrit Pal Singh, Tajpreet Kaur , Harpal Singh Buttar	Biochemistry of Cardiovascular Dysfunction in Obesity,	Vicious link of obesity with cardiometabolic and renal diseases. P S. Tappia et al. (eds.),	2020		Yes	Springer Nature, Switzerland
8	Amrit Pal Singh, Manjinder Singh, Tajpreet Kaur , Harpal Singh Buttar, Sarvpreet Singh Ghuman, Devendra Pathak	Biochemistry of Cardiovascular Dysfunction in Obesity,	Estradiol benzoate ameliorates obesity-induced renal dysfunction in male rats: biochemical and morphological observations. P S. Tappia et al. (eds.)	2020		Yes	Springer Nature, Switzerland
9	Amandeep Singh, Sneha Joshi, Ashima Joshi, Pooja Patni, Devesh Tewari. Drug induced hepatotoxicity	Influence of nutrients,bioactive compounds and plant extracts in liver diseases	Drug- Induced hepatotoxicity	2020	ISBN: 9780128175231	Yes	Academic Press, Elsevier, Netherland


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10	Charanjeet Kaur Mangat	Anatomy Insight	Cardiovascular Anatomy	2019	ISBN No. 978-81-940372-9-3	Yes	Paging Publisher
11	Manbir Kaur, Sandeep Rahar	Text Book of Pharmacognosy	Text Book of Pharmacognosy	2019	978-81-940372-5-5	Yes	Paging Publisher
12	Sandeep Rahar	Pharmaceutical Jurisprudence	Pharmaceutical Jurisprudence	2019	978-819379-81-6-4	Yes	Anant Publisher
13	Sandeep Rahar, Manbir Kaur	Health Education and Community Pharmacy	Health Education and Community Pharmacy	2018	978-81-937981-8-8	Yes	Anant Publisher
14	Jasjeet Kaur Narang, Inderbir Singh Bakshi, Anmol Dogra	Pharmaceutical I practical	Pharmaceutical I practical	2018	978-81-936309-9-0	Yes	Paging Publisher


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Chapter 6

Recent advances of dihydropyrimidinone derivatives in cancer research

Prince Ahad Mir¹, Jasreen Uppal¹, Aneeza Noor²,
Mohammad Ovais Dar³, Roohi Mohi-ud-din⁴, Adil Farooq Wali⁵,
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6.1 Introduction

Cancer is a chronic metabolic disorder and is one of the major causes of mortality despite advancements in the instruments of diagnosis, therapy, and preventative measures [1–3]. Cancer is one of the primary causes of death and illness across the world, and incidences are steadily increasing, with projections indicating that there will be 21 million new cases by the year 2030 [4,5]. This unregulated growth of a normal cell results in genomic abnormalities and mutations that aggregate throughout cells and tissues, which eventually causes a normal cell to turn into a tumor cell [6]. Many different kinds of cancer may affect humans; among them, lung cancer is known to be the most common form in males, while breast cancer is the most common form in females [7,8]. Cancer is a significant public health burden in both poor and industrialized nations and is quite commonly treated by medicinal plants as a whole or by their phytochemicals [9,10]. Historically, there were around 10.9 million newly diagnosed instances of cancer, 24.6 million people living with cancer, and 6.7 million fatalities recorded each year over the globe [10–13].

Chapter 9 - Hybrid alkaloids: An approach toward development of better anti-malarial therapeutics

Hardeep Kaur ^{1,2,*}, Amandeep Singh ², Hayat M Mukhtar ³, Harpreet Singh ¹¹ PG Department of Chemistry, Khalsa College Amritsar, Punjab, India² Department of Pharmacognosy and Phytochemistry, Khalsa College of Pharmacy, Amritsar, Punjab, India³ Himachal Institute of Pharmaceutical Education & Research, Himachal Pradesh, IndiaShow less  Outline |  Share  Cite[Get rights and content](#)

Abstract


Despite the productive efforts of the world health organization in the cure of malaria, still, the disease has been reported with significant morbidity and mortality in the African and Southeast Asian region. *Plasmodium falciparum* is the most prevalent malaria parasite accounting for 99.4% of global malaria cases. Its ability of quick adaptation, rapid resistance, and dormancy aggressively contribute to the recent failure reports of currently available antimalarial chemotherapeutics. To meet the target focused on the complete eradication of malaria cases set by WHO for 2030, there is an urgent need to develop some novel antimalarial molecules. In recent years, the covalent linking of two or more active pharmacophores resulting in a completely new hybrid motif with better remedial effect is considered the most acceptable approach for antimalarial drug discovery. Nitrogen-containing heterocyclic molecules in the form of alkaloids are always being accepted as the lead moiety in developing new chemical entities for treating malaria. The coupling of active pharmacophores of two or more nitrogen-containing heterocyclic alkaloids belonging to different classes resulted in hybrid alkaloids. Accordingly, the hybridization of various antimalarial alkaloids with other antimalarial scaffolds belonging to different parent groups of alkaloids represents the formation of novel hybrid alkaloids as a potential candidate in the cure of multidrug-resistant malaria. This chapter illustrates the current progress on hybridization and structure-activity relationship studies in the chemical skeleton of newly developed hybrid alkaloids as antimalarial agents.

Keywords

Hybrid antimalarial; Alkaloids; Quinoline hybrid; Pyrimidine; Indole; Imidazole

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Role of Probiotics in the Prevention and Management of Obesity: What Have We Learned So Far?

Tajpreet Kaur

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Abbreviations

AMPK	Adenosine adenosine monophosphate-activated protein kinase
FIAF	Fasting-induced adipose factor
FXR	Farnesoid X receptor
GLP-1	Glucagon Like Peptide-1
IL-1, IL-6	Interleukins-1 and 6
JNK-c	Jun N-Terminal kinase
LPL	Lipoprotein lipase
LPS	Lipopolysaccharide
NFκB	Nuclear factor kappa-light-chainenhancer of activated B cells
PYY	Peptide YY
SCFA	Short-chain fatty acid
TG	Triglycerides

25.1 Introduction

The term "obesity" refers to the excessive accumulation of white adipose tissue in the body, especially in the abdomen, which causes health issues in human beings. Primarily, obesity is the consequence of imbalanced energy intake and expenditure. As per the World Health Organization (WHO), body mass index (BMI) serves as the basis of defining overweight (BMI \geq 25) and obesity (BMI \geq 30). Since 1975, a three-fold increase in the number of obese people has been reported. Around 13% of the world's population (men 11% and women 15%) is obese (WHO, 2020). The data suggests that 650 million and 1.9 billion adults are obese and overweight, respectively. Obesity in children is increasing at an alarming rate. It is projected that over 38 million children under 5 are obese, whereas more than 340 million children and adolescents (5–19 years) are overweight/obese (WHO, 2020). Obesity is major health challenge in the developed world and growing at an alarming pace in developing nations. Obesity has been reported to induce and aggravate cardiovascular disorders, stroke, diabetes mellitus, and cancer.

Chapter 1

Drug regulatory affairs: an introduction

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1.1 Introduction

A substantial increase in regulations and legislations related to the assessment of efficacy, quality, and safety of drug products came into existence following the multiple tragedies—sulfanilamide elixir disaster, 1937; sulfathiazole disaster, 1941; thalidomide disaster, 1962—being a few of them (Harsha et al., 2017). However, the enactment of various Acts and laws also led to the evolution of drug regulations and their evolution over time.

1. **The 1906 Food and Drugs Act:** The Act's main motive was to prohibit the foreign and interstate movement of questionable, mislabeled, and adulterated food and drug products.
2. **Durham–Humphrey Amendment 1951:** The amendment granted the authority to Food and Drug Administration (FDA) to establish a distinction between two categories of medicines, that is prescription drugs and over-the-counter (OTC) drugs. Before this amendment, the manufacturers were free to determine the category of the drug.
3. **Kefauver–Harris Drug Amendment 1962:** According to this amendment the drug manufacturer has to prove that the product is effective based on adequate and well-controlled clinical trial before getting marketing approval.
4. **Orphan Drug Act 1983:** This Act encouraged the manufacturers of drugs to formulate medicines for diseases which occur rarely (affect less than 200,000 persons in the United States) and in return the regulatory authorities would provide the manufacturers with benefits, such as tax incentives, subsidies on clinical research, patent protection, and exclusive marketing rights.
5. **Drug Price Competition and Patent Restoration Act 1984:** The Act is commonly termed as the Hatch–Waxman Amendment. This established a pathway for the approval of generic drugs filed under the abbreviated new drug application (ANDA). This act also includes provisions for patent time increment and patent exclusivity related to the new drug applications (NDAs).
6. **Generic Drug Enforcement Act 1992:** This Act states that the drug applicant will not use the services of a person who has been convicted of a felony under federal law for conduct related to or in connection with a drug product application.
7. **Prescription Drug User Fee Act 1992:** The Act gave the authority to FDA for collecting fees from the drug firms manufacturing any drug for human administration or biological products to fund the new drug approval process.
8. **FDA Modernization Act 1997:** This act is aimed for better and improved regulation of drugs, food, devices, and biological products by enhancing advancements in technology as well as in trade and public health complexities.

The concept of regulatory affairs was also strengthened, besides setting up of stricter regulations for Good Manufacturing Practices (GMPs) and marketing authorizations.

The terms commonly used in Drug Regulatory Affairs (DRA) are mentioned below:

1. **U.S. FDA:** It is a federal agency of the U.S. Department of Health and Human Services, which has the responsibility to protect the health of the public.
2. **NDA:** It is an application which a drug sponsor files with the FDA to get marketing approval of their new drug product in the United States.
3. **Investigational New Drug Application:** In order to get permission for evaluating an experimental drug legally on human beings in the United States, an investigational new drug (IND) is filed with the FDA.

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Editors: R. Singh Dahiya and T. Gurjeet Singh

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Chapter 7

DIABETIC CARDIOMYOPATHY: PATHOPHYSIOLOGICAL MECHANISMS AND POTENTIAL TARGET SITES

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ABSTRACT

Diabetic cardiomyopathy is diabetes mellitus-induced abnormality of heart, which involves changes in cardiac structure and functioning and consequently results in heart failure and the prevalence of diabetic cardiomyopathy is increasing in parallel with the increase in diabetes mellitus. Diabetic cardiomyopathy is initially characterized by myocardial fibrosis, dysfunctional remodeling, and associated diastolic dysfunction, later by systolic dysfunction, and eventually by clinical heart failure. The cardiac hypertrophy, fibrosis and contractile dysfunction are the distinct features of diabetic cardiomyopathy in animal models and patients. Various pathological mechanisms involving insulin resistance, advanced glycation end products, impaired cardiac insulin metabolic signalling, mitochondrial dysfunction lipotoxicity, altered calcium handling, renin-angiotensin-aldosterone system activation, cardiac autonomic neuropathy, endoplasmic reticulum stress, microvascular dysfunction, generation of reactive oxygen species and inflammation have been demonstrated to contribute towards induction and progression of diabetic cardiomyopathy. Various targets including adenosine monophosphate kinase, peroxisome proliferator activated receptor- α , β/δ , γ , sodium glucose transporter-2, nitric oxide synthase, mitogen activated protein kinases, nuclear factor kappa of activated B cells, exosomes, protein kinase C and micro ribonucleic acids have emerged as therapeutic options for treatment of diabetic cardiomyopathy. The present chapter is an attempt to summarize the novel findings related to these potential target sites.

Keywords: diabetic cardiomyopathy, fibrosis, hypertrophy, hyperglycemia, insulin resistance

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CHAPTER 35

Quercetin Chemistry, Structural Modifications, Sar Studies and Therapeutic Applications: An Update

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Abstract: Natural products are investigated for their remunerative effects on health. Quercetin, a flavonoid, is commonly distributed in vegetables and fruits. Quercetin is used as a supplement in food and as a phytochemical remedy against several diseases, including circulatory dysfunction, neurodegeneration, diabetes, cancer, and inflammation. The most prominent property of quercetin is antioxidant activity, enabling it to douse free radicals. Derivatives of quercetin are essential metabolites, and even various conjugates are being advocated by the Food and Drug Administration (FDA) for use in humans. So, the biosynthesis of quercetin derivatives is a predominant field of research. Methylation and glycosylation are two essential strategies used to synthesize various metabolites of quercetin that do not exist in nature. This review

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Atta-ur-Rahman (Ed.)

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Chapter 6

Vicious Link of Obesity with Cardiometabolic and Renal Diseases



Amrit Pal Singh, Tajpreet Kaur, and Harpal Singh Buttar

Abstract Obesity is escalating all over the world and prevails among 13% of adult population. World Health Organization (WHO) has estimated that excessive body weight and obesity related incidences of type 2 diabetes mellitus (T2D) and cardiovascular diseases (CVDs) has increased nearly fourfold over the last 25 years. Excessive deposition of peripheral and visceral fat also causes metabolic syndrome and renal complications. In obese subjects, the risk of non-communicable diseases (NCDs) such as musculoskeletal and neurodegenerative disorders, infertility, and breast cancer is relatively higher than lean persons. The white adipocytes secrete a wide variety of bioactive chemicals such as adipokines, resistin, leptin, interleukins (IL-1 β , IL-6), tumor necrosis factor- α (TNF- α), interferon- γ (IFN- γ), monocyte chemoattractant protein-1 (MCP-1), free fatty acid, macrophages infiltration, mast cell degranulation, plasminogen activator inhibitor-1 (PAI-1), endothelial adherence molecules and oxidative stress. These bioactive chemicals play crucial role in the pathogenesis of obesity-induced disorders like insulin resistance, dyslipidemia, metabolic syndrome, atherosclerosis, thrombosis, vasculopathy, high blood pressure, glomerulopathy and glomerulosclerosis. Well planned health care strategies are needed to reduce the risk of nongenetic factors associated with obesity, and their links with T2D, CVDs and renal diseases. The health-care burden related to NCDs such as obesity, T2D, and CVDs and neurodegenerative disorders, renal diseases and cancer is escalating worldwide. People need to think about the cost-effective measures such as lifestyle modifications, unhealthy dietary habits, physical activity, and consumption of healthful foods containing green vegetables, fruits, and Mediterranean-type diet consisting of olive oil, poultry and fish, dairy products, fiber rich foods, and low amount of red meat. The focus of this review is to highlight the

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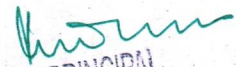
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A

Chapter 19

Estradiol Benzoate Ameliorates Obesity-Induced Renal Dysfunction in Male Rats: Biochemical and Morphological Observations



Amrit Pal Singh, Manjinder Singh, Tajpreet Kaur, Harpal Singh Buttar,
Sarvpreet Singh Ghuman, and Devendra Pathak

Abstract Obesity-induced renal dysfunction is a potential risk factor for causing cardiometabolic diseases, but the underlying mechanism remains unclear. Present study was designed to evaluate the protective role of estradiol benzoate in high fat diet (HFD)-induced renal dysfunction in male rats. Six groups of rats (7 animals/group) were randomly assigned to different treatment groups. Adult male and female rats were fed high fat diet (HFD) containing 30% fat for 12 consecutive weeks. One group of male rats simultaneously received daily injections of estradiol benzoate (50 and 100 $\mu\text{g}/\text{kg}/\text{day}$, i.p.) over 12 weeks. HFD-induced obesity was assessed by calculating obesity index, adiposity index, and serum lipid profile. Renal function was determined by measuring creatinine clearance, serum urea, uric acid, electrolytes, and microproteinuria. Serum estradiol level and systolic blood pressure (SBP) were measured using standardized techniques. Hydroxyproline content was quantified in the kidneys to estimate collagen deposition. Renal oxidative stress was measured through quantification of thiobarbituric acid reactive substances, superoxide anion generation and reduced glutathione levels. Hematoxylin and Eosin and special Picrosirius red staining of the isolated kidney tissues was done to observe

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Influence of Nutrients, Bioactive Compounds, and Plant
Extracts in Liver Diseases
2021, Pages 141-157

Chapter 8 - Drug-induced hepatotoxicity

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Abstract


The liver is the largest gland in the human body and it is situated in the right side of the upper abdominal cavity. Liver damage can be generally caused by drugs, particularly antitubercular, paracetamol, general anesthetics, and some anticancer drugs. Toxic hepatitis is the most common severe adverse reaction caused by antituberculosis drugs. It mostly starts in the first few weeks of treatment accompanying liver necrosis, which may unfold to neurological disorder and death. Apart from synthetic drugs, many agents such as alcohol consumption also play a significant role in liver damage. Although many synthetic drugs are available to treat hepatotoxicity, still natural product-based drugs such as silymarin are among the favorable choices for hepatotoxicity.

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Keywords

Hepatotoxicity; Silymarin; Rifampicin; Drug-induced toxicity


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Cardiovascular Anatomy

By Charanjeet Kaur Mangat
Asst. Prof. Anatomy
Khalsa College of Pharmacy and
Technology, Amritsar, Punjab

Cardiovascular system (Cardio -heart, vascular- blood vessels) is basically a closed circulatory system through which waste products, respiratory gases and nutrients are conveyed to various parts of the body. Blood is the conveying medium through which oxygen and nutrients are transported to every cell, expelling carbon dioxide and other waste products.

Functions of Cardiovascular System

1. It transports and distributes blood to deliver nutrients, hormones and oxygen throughout the body.
2. Removes metabolic waste from tissues.
3. Helps to protect body against certain infections with the help of white blood cells which circulate in the blood.
4. Maintains body temperature and fluid balance within the body.

Main Components

- Heart
- Blood vessels

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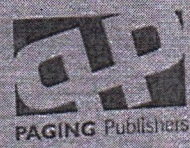
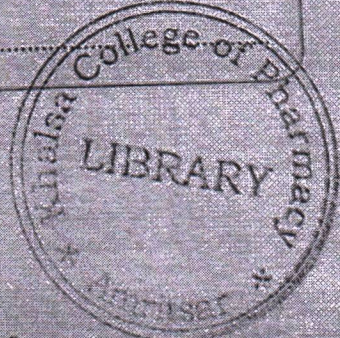
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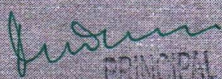
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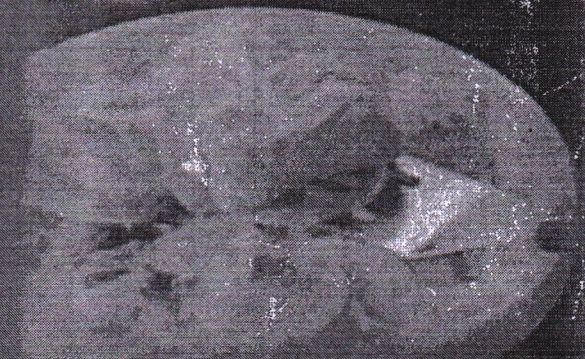
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Textbook
of
Pharmacognosy

for D. Pharm



Dr. Manbir Kaur

Dr. Sandeep Bhatia

The Textbook of Pharmacognosy is written to provide knowledge of alternative systems of medicine includes the study of drugs obtained from natural origin. Nowadays, Herbal and Ayurveda medicines are holding deep roots in treatment therapies and average public relies upon them due to their lesser side effects and availability. For the sound knowledge of such drugs, a pharmacist should have proper recognition about Botanical source, part used, cultivation procedures, harvesting methods, storage conditions, chemical nature and therapeutic uses of crude drugs. This book contains all these parameters about such crude drugs. Additionally, the basic information about morphology of different parts of plants and anatomical features of such drugs are included in this book. All the contents of this book would be informative for Diploma and Degree students in the field of Pharmacognosy. This book is written as per the syllabus & easy to understand by the students

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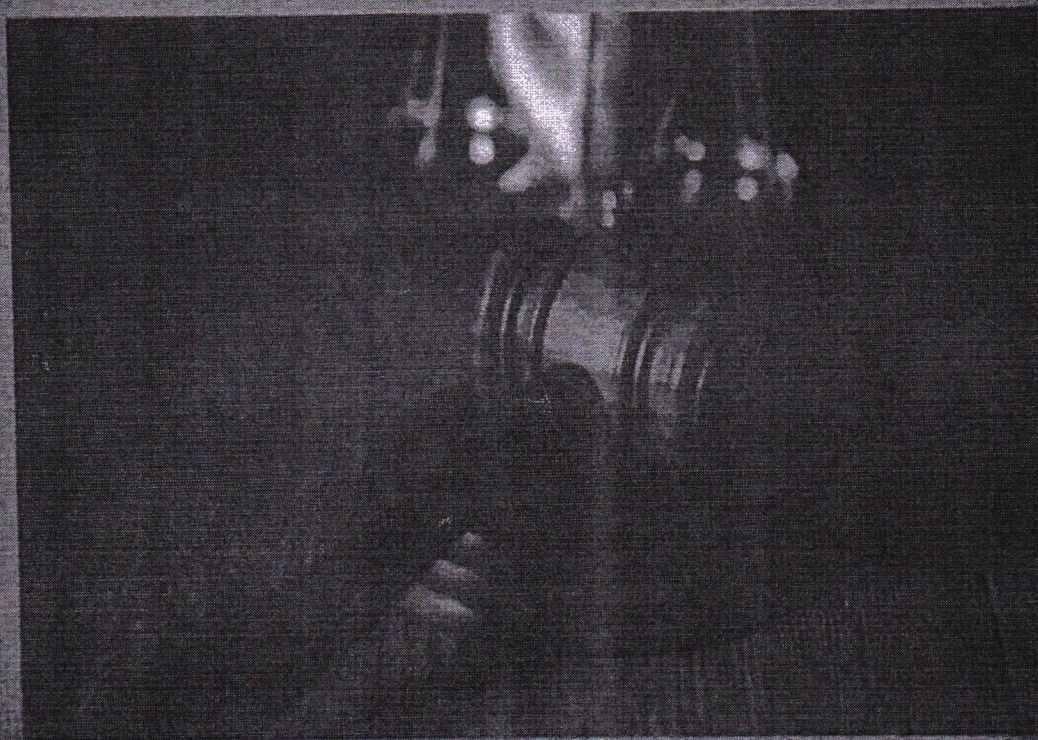
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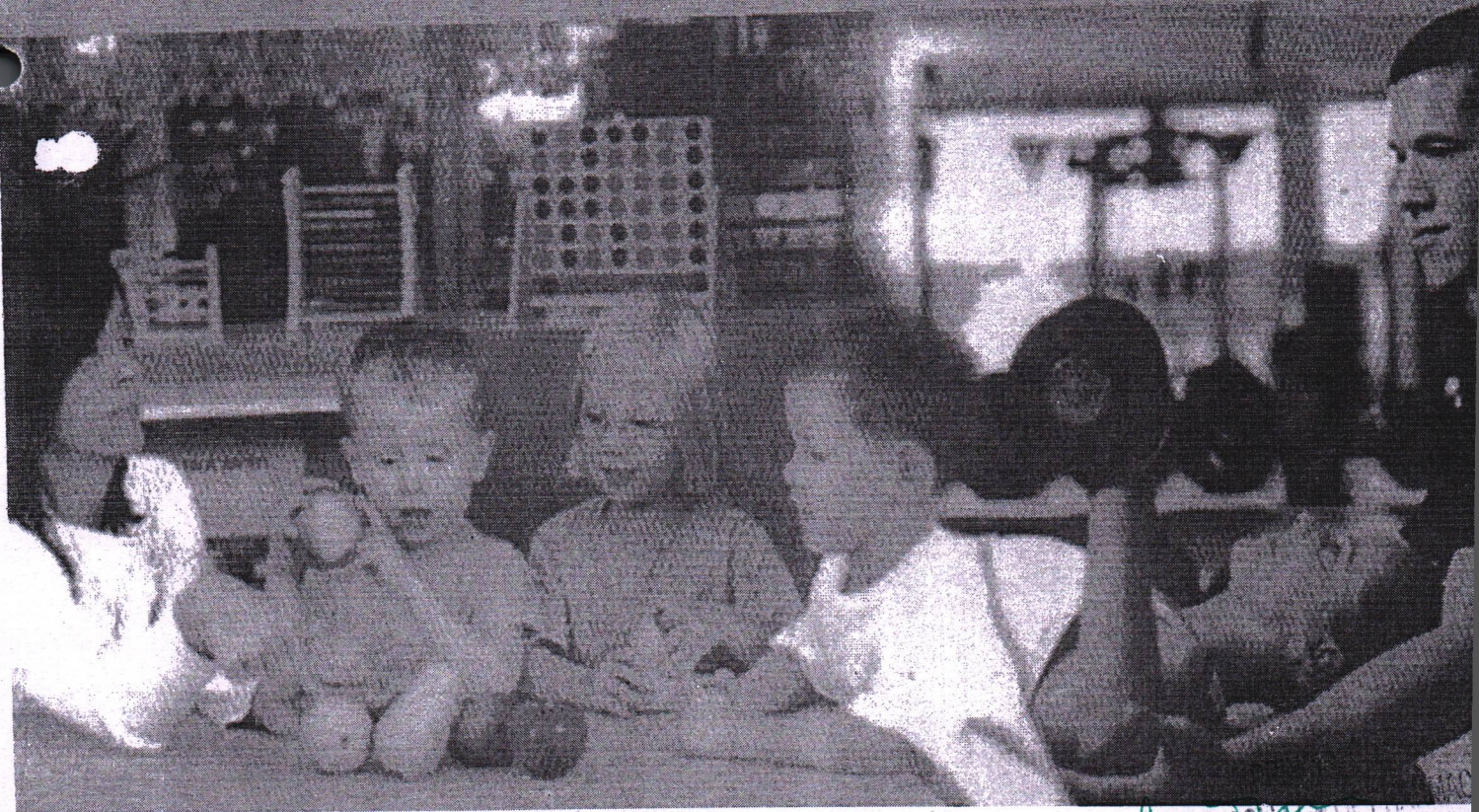
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