

# **ROLE OF LEPTIN IN HYPERTENSION IN OBESE MALES**

**THESIS**

Submitted for the partial fulfillment of Master Degree in Physiology

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## **Abstract**

Leptin hormone is secreted from adipose tissue and has important role in controlling appetite and many metabolic function and may having arole in producing Hypertension in obese males.

Leptin is measured in 4 groups : lean normotensives , lean Hyprtensives , obese normotensives and obese Hypertensives .

The level of leptin was highest in obese Hypertensive males when Compared to other groups .

Key words :

**Leptin – obesity – Hypertension .**

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# CONTENTS

	Page
<b>INTRODUCTION</b> .....	<b>1</b>
<b>AIM OF WORK</b> .....	<b>3</b>
<b>REVIEW OF LITERATURE</b> .....	
● Obesity .....	<b>4</b>
● Hypertension .....	<b>28</b>
● Leptin .....	<b>43</b>
● Leptin and Hypertension .....	<b>58</b>
● Leptin, Obesity and Hypertension .....	<b>70</b>
<b>MATERIALS AND METHODS</b> .....	<b>82</b>
<b>RESULTS</b> .....	<b>94</b>
<b>DISCUSSION</b> .....	<b>131</b>
<b>SUMMARY</b> .....	<b>143</b>
<b>CONCLUSION &amp; RECOMMENDATION</b> .....	<b>145</b>
<b>REFERENCES</b> .....	<b>146</b>
<b>ARABIC SUMMARY</b> .....	

# LIST OF TABLES

<b>Table NO.</b>	<b>Title</b>	<b>Page</b>
<b>I</b>	<b>Classification of adults according to BMI.</b>	<b>5</b>
<b>II</b>	<b>Changes in Blood Pressure Classification.</b>	<b>30</b>
<b>1</b>	<b>Values of clinical data and results of investigated parameters in Lean Control "Normotensive" (A1) group.</b>	<b>106</b>
<b>2</b>	<b>Values of clinical data and results of investigated parameters in Obese Control "Normotensive" (A2) group.</b>	<b>107</b>
<b>3</b>	<b>Values of clinical data and results of investigated parameters in Lean Hypertensive (B1) group.</b>	<b>108</b>
<b>4</b>	<b>Values of clinical data and results of investigated parameters in Obese Hypertensive (B2) group.</b>	<b>109</b>
<b>5</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between group A = (A1+A2) "without Hypertension" &amp; group B = (B1+B2) " with Hypertension".</b>	<b>114</b>
<b>6</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between Lean group (A1+B1) &amp; Obese</b>	<b>116</b>

	<b>group (A2+B2).</b>	
<b>7</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between group B1(Lean Hypertensive) &amp; group B2 (Obese Hypertensive).</b>	<b>118</b>
<b>8</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between group A1 (Lean Control) &amp; group A2 (Obese Control).</b>	<b>119</b>
<b>9</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between group A2 (Obese Control) &amp; B2 (Obese Hypertensive).</b>	<b>120</b>
<b>10</b>	<b>Comparative study regarding clinical &amp; laboratory parameters between group A1 (Lean Control) &amp; group B1 (Lean Hypertensive).</b>	<b>121</b>
<b>11</b>	<b>Correlation between serum leptin &amp; all parameters in all groups.</b>	<b>122</b>
<b>12</b>	<b>Correlation between serum leptin &amp; all parameters in group A = (A1+A2) "without Hypertension" &amp; group B = (B1+B2) "with Hypertension".</b>	<b>123</b>
<b>13</b>	<b>Correlation between serum leptin &amp; all parameters in Lean group (A1+B1) &amp; Obese group (A2+B2).</b>	<b>124</b>
<b>14</b>	<b>Correlation between serum leptin &amp; all parameters in different subgroups.</b>	<b>125</b>

<b>15</b>	<b>Linear regression analysis showing the effects of different parameters on MSBP.</b>	<b>126</b>
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# LIST OF FIGURES

<b>Figure NO.</b>	<b>Title</b>	<b>Page</b>
<b>1</b>	<b>Leptin receptor isoforms.</b>	<b>49</b>
<b>2</b>	<b>proposed mechanism for sympathoactivation &amp; increased in renal sympathetic nerve activity.</b>	<b>59</b>
<b>3</b>	<b>Possible interactions among leptin, sympathetic activity, endothelial dysfunction and leptin resistance in increasing renal tubular sodium reabsorption and mediating obesity hypertension.</b>	<b>81</b>
<b>4</b>	<b>Serum Leptin in different subgroups.</b>	<b>110</b>
<b>5</b>	<b>Body Mass Index in different subgroups.</b>	<b>110</b>
<b>6</b>	<b>Waist Circumference in different subgroups.</b>	<b>111</b>
<b>7</b>	<b>Mean Systemic Blood Pressure in different subgroups.</b>	<b>111</b>
<b>8</b>	<b>Serum Triglycerides in different subgroups.</b>	<b>112</b>
<b>9</b>	<b>Total cholesterol in different subgroups.</b>	<b>112</b>
<b>10</b>	<b>High Density Lipoproteins in different subgroups.</b>	<b>113</b>
<b>11</b>	<b>Low Density Lipoproteins in different subgroups.</b>	<b>113</b>
<b>12</b>	<b>Serum Leptin in A &amp; B groups.</b>	<b>115</b>
<b>13</b>	<b>Serum Triglycerides in A &amp; B groups.</b>	<b>115</b>
<b>14</b>	<b>Serum Leptin in Lean &amp; Obese groups.</b>	<b>117</b>



<b>15</b>	<b>Serum Triglycerides in Lean &amp; Obese groups.</b>	<b>117</b>
<b>16</b>	<b>Correlation between serum leptin and Mean Systemic Blood Pressure(MSBP) in A &amp; B groups.</b>	<b>127</b>
<b>17</b>	<b>Correlation between serum leptin and total cholesterol in A &amp; B groups.</b>	<b>128</b>
<b>18</b>	<b>Correlation between serum leptin and Waist Circumference in A &amp; B groups.</b>	<b>129</b>
<b>19</b>	<b>Correlation between serum leptin and Waist Circumference in A &amp; B groups.</b>	<b>130</b>

# List of Abbreviations

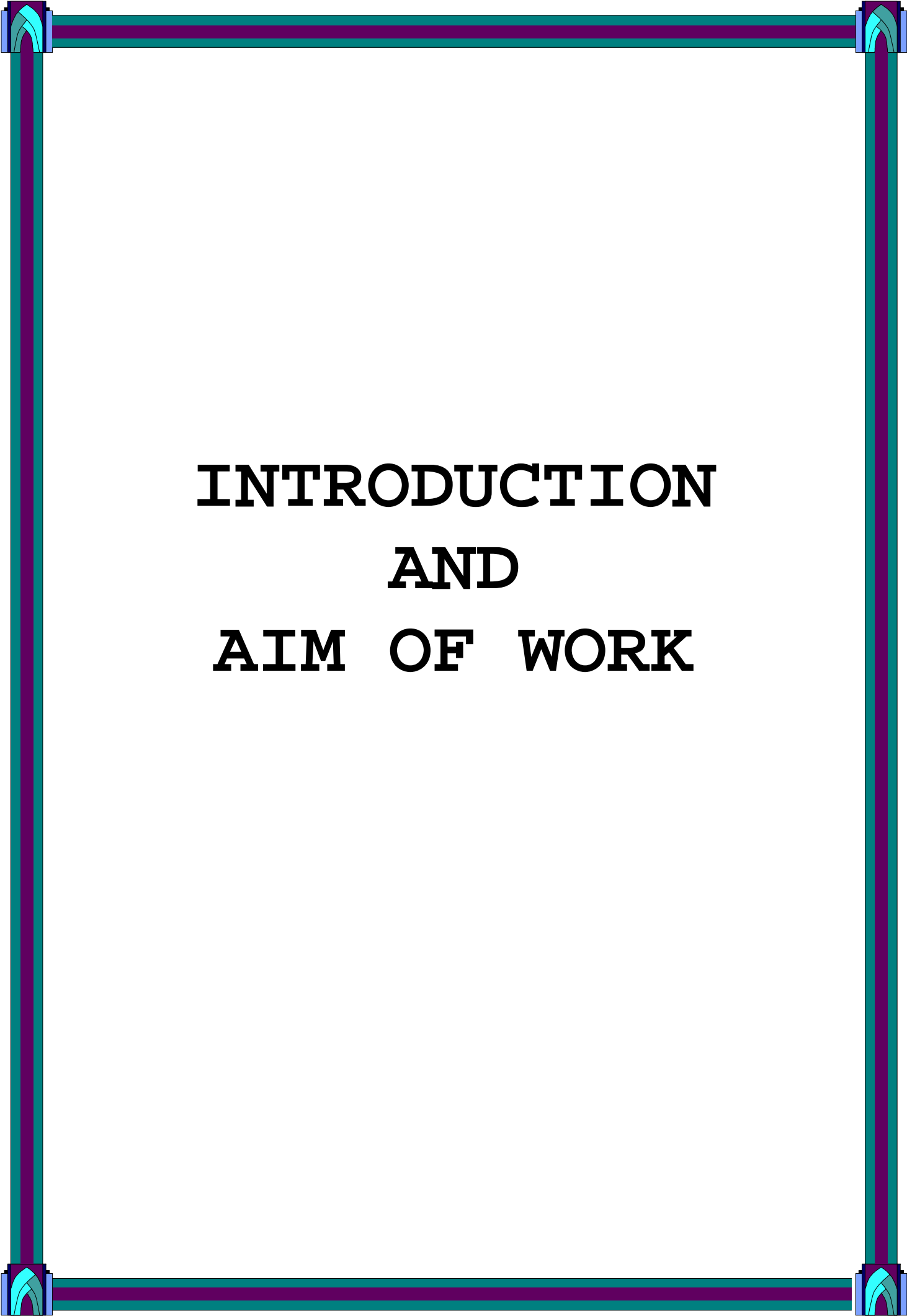
<b>µg:</b>	Microgram.
<b>A I:</b>	Agiotensin I.
<b>A II:</b>	Agiotensin II.
<b>AAP:</b>	Aminoantipyrine.
<b>ACE:</b>	Angiotensin Converting Enzyme.
<b>ADH:</b>	Anti-Diuretic Hormone.
<b>ADP:</b>	Adenosine diphosphate.
<b>AGRP:</b>	Agouti Related Peptide.
<b>AM:</b>	Adrenomedullin.
<b>ANP:</b>	Atrial Natriuretic Peptide.
<b>APOA-IV:</b>	Apo-lipoprotein A-IV.
<b>AR:</b>	Adrenergic Receptors.
<b>ART:</b>	Angouth Related Transcript.
<b>ATP:</b>	Adenosine triphosphate.
<b>AT-R:</b>	Agiotensin- Receptor.
<b>AVP:</b>	Arginine Vasopressin Peptide.
<b>BAT:</b>	Brown Adipose Tissue.
<b>BMD:</b>	Bone Mineral Density.
<b>BMI:</b>	Body Mass Index.
<b>BMR:</b>	Basal Metabolic Rate.
<b>BNP:</b>	Brain Natriuretic Peptide.
<b>BP:</b>	Blood Pressure.
<b>cAMP:</b>	Cyclic Adenosine Mono-Phosphate.
<b>cGMP:</b>	Cyclic Guanosine Mono-Phosphate.
<b>CGRP:</b>	Calcitonin Gene Related Peptide.
<b>CHD:</b>	Coronary Heart Disease.
<b>CNP:</b>	C-type Natriuretic Peptide.
<b>CNS:</b>	Central Nervous System.

<b>CPE:</b>	Carboxy Peptidase E.
<b>CRH:</b>	Corticotropine Releasing Hormone.
<b>CT:</b>	Computerized tomography.
<b>CVD:</b>	Cardiovascular Disease.
<b>CVS:</b>	Cardiovascular System.
<b>DAP:</b>	Dihydroxy Acetone Phosphate.
<b>DBP:</b>	Diastolic Blood Pressure.
<b>dl:</b>	Deciliter.
<b>DM:</b>	Diabetes Mellitus.
<b>EASIA:</b>	Enzyme Amplified Sensitivity Immune Assay.
<b>EDHF:</b>	Endothelial Derived Hyperpolarizing Factor.
<b>EDRF:</b>	Endothelial Derived Relaxing Factor.
<b>EDTA:</b>	Ethelene Diamine Tetraacetic Acid.
<b>EET:</b>	Epoxyeicosatrieonic.
<b>ELISA:</b>	Enzyme Linked Immune Assay.
<b>ERK<sub>S</sub>:</b>	Extracellular Regulated Kinases.
<b>ET-A:</b>	Endothelin-1 Receptor Agonist.
<b>FFA:</b>	Free Fatty Acid.
<b>H:</b>	Height.
<b>H<sub>2</sub>O<sub>2</sub>:</b>	Hydrogen Peroxide.
<b>HDL:</b>	High Density Lipoprotein.
<b>HF:</b>	Heart Failure.
<b>HPA:</b>	Hypothalamo Pituitary Axis.
<b>HRP:</b>	Horseradish Peroxidase.
<b>HSC:</b>	Hepatic Stellate Cells.
<b>HSL:</b>	Hormone Sensitive Lipase.
<b>G<sub>3</sub>P:</b>	Glycerol-3 Phosphate.
<b>GABA:</b>	Gama Amino Butyric Acid.
<b>GFR:</b>	Glomerular Filtration Rate.
<b>GK:</b>	Glycerol Kinase.

<b>GPO:</b>	Glycerol Phosphate Oxidase.
<b>IBW:</b>	Ideal Body Weight.
<b>ICV:</b>	Intracerebro Ventricular.
<b>IHD:</b>	Ischemic Heart Disease.
<b>IL:</b>	Interleukin.
<b>IR:</b>	Insulin Resistan.
<b>IRS:</b>	Insulin Receptor Substrate.
<b>JAK:</b>	Janus Protein Tyrosine Kinase.
<b>JNC:</b>	Joint National Committee.
<b>Kg:</b>	Kilogram.
<b>LDL:</b>	Low Density Lipoprotein.
<b>LDL -R:</b>	Low Density Lipoprotein-Receptor.
<b>LIF:</b>	Leukemia Inhibiting Factor.
<b>L-NAME:</b>	L- Nitro Arginine Methylester.
<b>LPL:</b>	Lipoprotein Lipase.
<b>LVH:</b>	Left Ventricular Hypertrophy.
<b>m:</b>	Miter.
<b>MAPK:</b>	Mitrogen Activated Protein Kinase.
<b>MC:</b>	Melanocortin.
<b>MCAbs:</b>	Monoclonal Antibodies.
<b>MCH:</b>	Melanin Concentrating Hormone.
<b>MCR:</b>	Melanocortin Receptor.
<b>mg:</b>	Milligram.
<b>ml:</b>	Milliliter.
<b>mmHg:</b>	Millimeter Mercury.
<b>mRNA:</b>	Messenger Ribonucleic Acid.
<b>MRS:</b>	Magnetic Resonance Spectroscopy.
<b>MSBP:</b>	Mean Systemic Blood Pressure.
<b>MSH:</b>	Melanocyte Stimulating Hormone.
<b>MSX:</b>	Metabolic Syndrome.

<b>NE:</b>	Norepinephrine.
<b>ng:</b>	Nanogram.
<b>nm:</b>	Nanometer.
<b>NO:</b>	Nitric Oxide.
<b>NOS:</b>	Nitric Oxide Synthase.
<b>NPY:</b>	Neuro Peptide Y.
<b>Ob-R:</b>	Leptin Receptor.
<b>OD:</b>	Optimal Density.
<b>OSA:</b>	Obstructive Sleep Apnea.
<b>PASP:</b>	Pulmonary Artery Systolic Pressure.
<b>PI-3K:</b>	Phosphatidyl Inostiol -3 Kinase.
<b>PKCE:</b>	Protein Kinase Carboxy Peptidase E.
<b>POMC:</b>	Pro-opiomelanocortin.
<b>PP:</b>	Pulse Pressure.
<b>PPAR:</b>	Peroxime Proliferators Activated Receptor.
<b>PRA:</b>	Plasma Renin Activity.
<b>PVN:</b>	Paraventricular Nucleus.
<b>RAAS:</b>	Renin Angiotensin Aldosterone System.
<b>RAS:</b>	Renin Angiotensin System.
<b>REM:</b>	Rapid Eye Movement.
<b>ROS:</b>	Reactive Oxygen Species.
<b>RXR:</b>	Retinoid X Receptor.
<b>SBP:</b>	Systolic Blood Pressure.
<b>SHBG:</b>	Sex Hormone Binding Globulin.
<b>SHR:</b>	Spontaneously Hypertensive Rats.
<b>SNA:</b>	Sympathetic Nervous Activity.
<b>SNS:</b>	Sympathetic Nervous System.
<b>STAT:</b>	Signal Transducers and Activators of Transcription.
<b>TG:</b>	Triglycerides.
<b>TGF-β1:</b>	Transforming Growth Factor-β1.

<b>TNF-<math>\alpha</math>:</b>	Tumour Necrosis Factor - $\alpha$ .
<b>UCP:</b>	Uncoupling Protein.
<b>VLDL:</b>	Very Low Density Lipoprotein.
<b>WAT:</b>	White Adipose Tissue.
<b>WC:</b>	Waist Circumference.
<b>WHO:</b>	World Health Organization.
<b>WHR:</b>	Waist Hip Ratio.
<b>W:</b>	Weight.



# **INTRODUCTION AND AIM OF WORK**