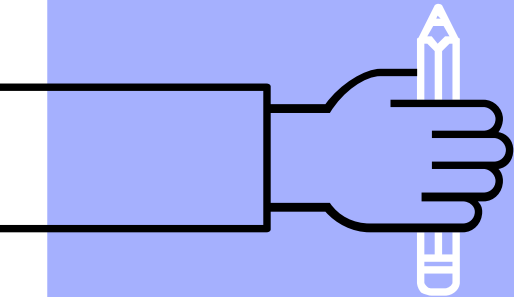
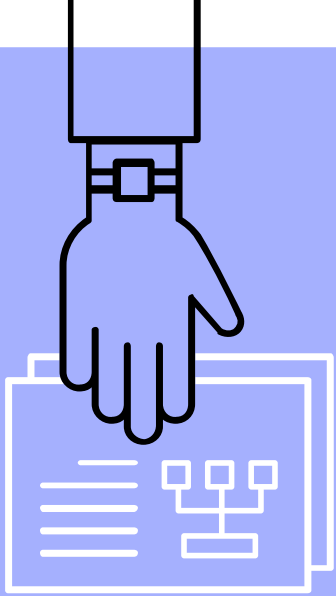
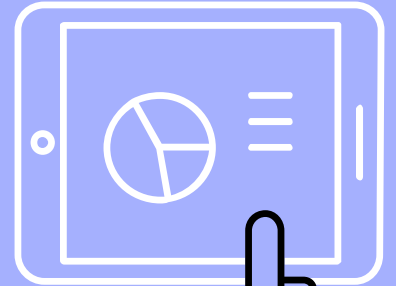
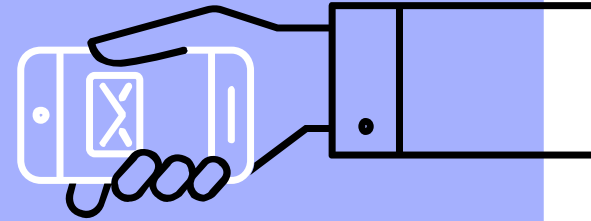


Σύστημα ρενίνης- αγγειοτασίνης- αλδοστερόνης

Ιωάννης Γ. Γριβέας, MD, PhD
Νεφρολόγος



The discovery of hypertension: evolving views on the role of the kidneys, and current hot topics

Richard J. Johnson,¹ Miguel A. Lanasa,¹ L. Gabriela Sánchez-Lozada,² and Bernardo Rodríguez-Iturbe³



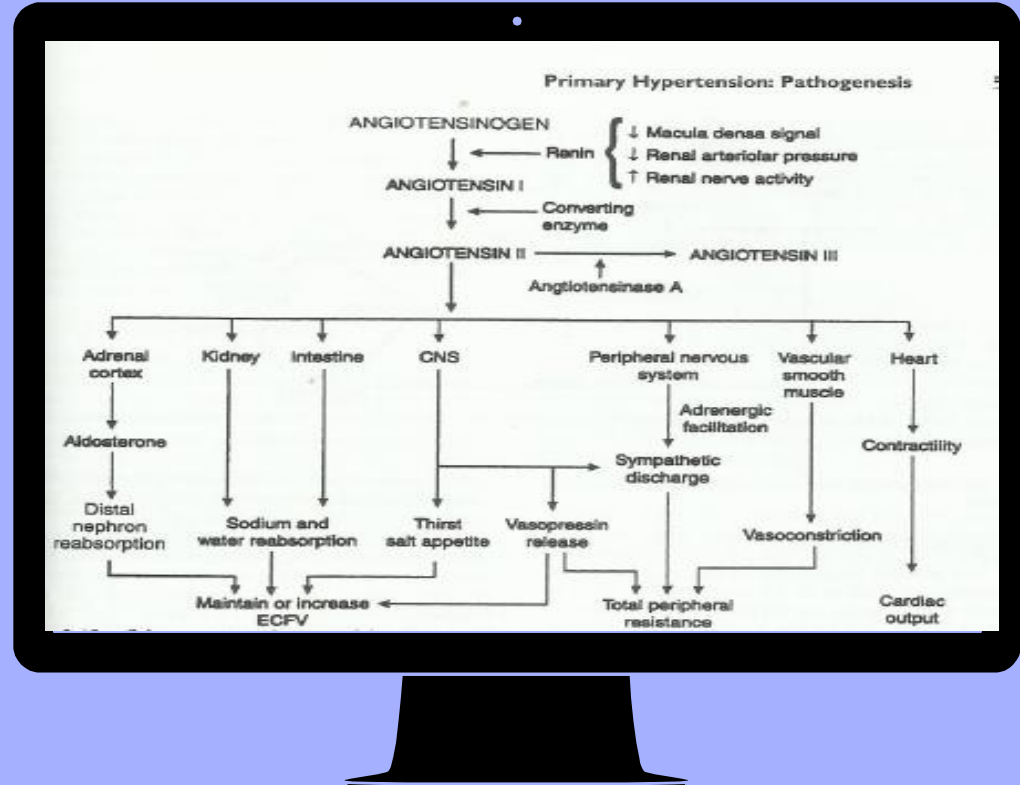
Fig. 1. Scipione Riva-Rocci (*left*) described a practical method of determining systolic blood pressure using a mercury manometer and an inflatable cuff (*middle*) to determine the pressure (mmHg) needed to occlude the brachial artery and thus suppress the radial pulse. The photograph of Scipione Riva-Rocci (unknown photographer, 1896) is in the public domain according to the Danish Consolidated Act Copyright of 2010 (Danish National Archive). Nicolai Korotkoff (*right*) described the appearance and disappearance of sounds “just below the cuff” using a stethoscope, thus allowing for the measurement of diastolic pressure. He stated that “the absence of pulsations is not indicative that the artery is completely occluded. In this respect, our hearing is a better guide” (90, 132). The photograph of Nicolai Korotkoff (unknown photographer, 1900) is in the public domain according to article 1256 of the Civil Code of the Russian Federation. The photograph of the manometer is in the public domain because its copyright has expired; the original source is Korotkoff NS, *Experiments for Determining the Strength of Arterial Collaterals*. St. Petersburg, Russia: Imperial Military Medical Academy, 1910. Dissertation.

The inextricable role of the kidney in hypertension

Steven D. Crowley¹ and Thomas M. Coffman^{1,2}



The renin-angiotensin system (RAS) is a powerful modulator of blood pressure, and dysregulation of the RAS causes hypertension. Pharmacological blockade of the RAS with renin inhibitors, angiotensin-converting enzyme (ACE) inhibitors, or angiotensin receptor blockers effectively lowers blood pressure in a substantial proportion of patients with hypertension (19), reflecting the important role for RAS activation as a cause of human hypertension. Similarly, in rodent models, deletion of RAS genes lowers blood pressure whereas overexpression causes hypertension (20).



J Clin Invest. 2014;124(6):2341-2347. <https://doi.org/10.1172/JCI72274>.

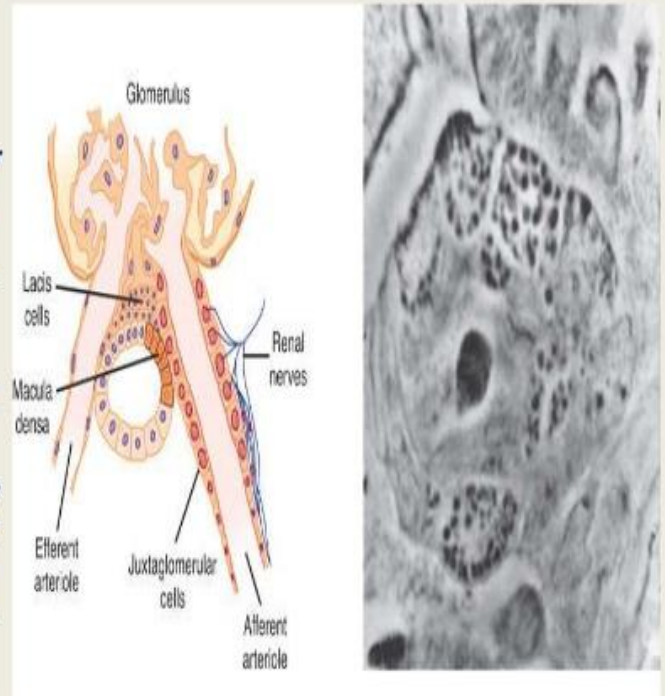
...Η Μοριακή βιολογία του συστήματος είναι πιο περίπλοκη από ότι πιστεύαμε...

...Human renin gene...

Renin –

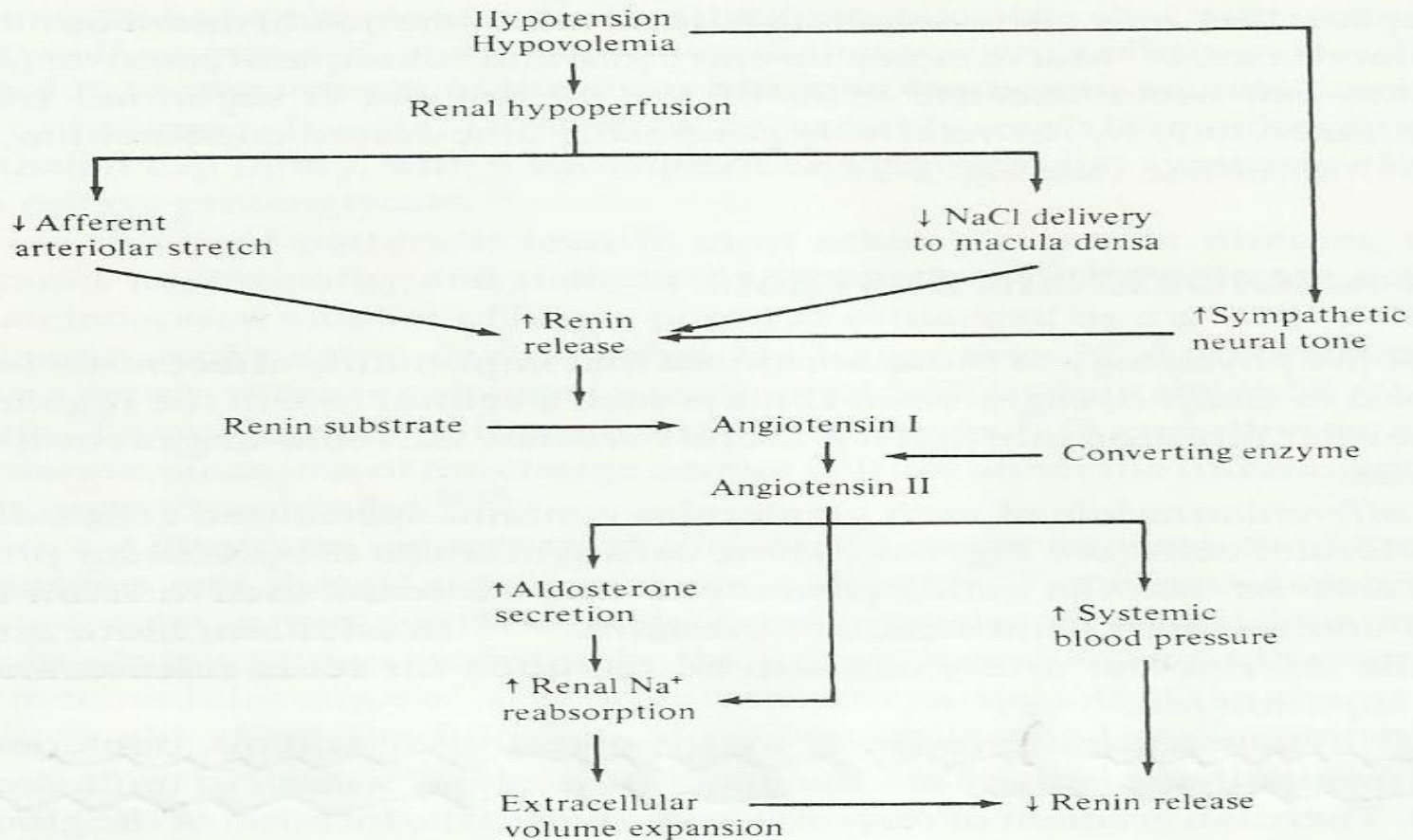
Hormonal peptide-340 AA, an enzyme .
T_{1/2} -15 min , prepared and stored in granular JG cells in kidney and also other tissue—the main source of plasma Renin (active) and 90% in prorenin (inactive but immune reactive). it is synthesized in both constitutive and rate limiting pathway. It catalyzes the rate limiting step of RAS – attract active future target.

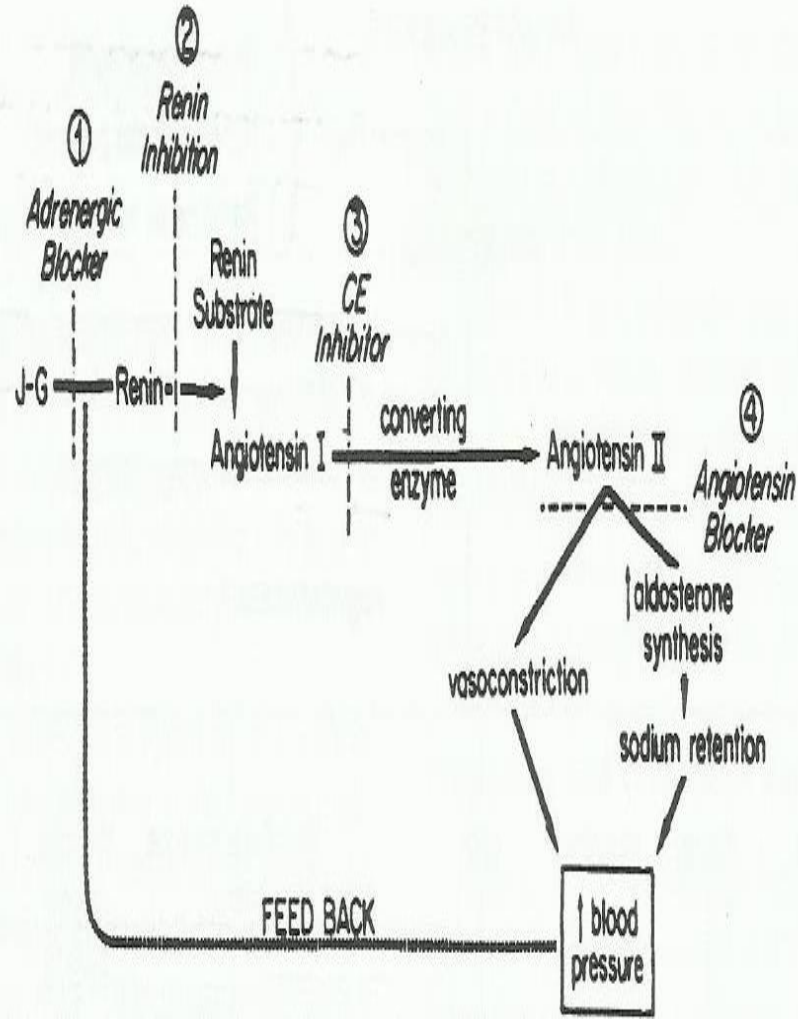
Stretch receptors (pressure sensor) in the afferent arteriole, local SNS , Na content of the tubular fluid reaching the macula Desna cell - release around JGA → Renin .



Source: Barrett KE, Barman SM, Boitano S, Brooks H: Ganong's Review of Medical Physiology, 23rd Edition. <http://www.accessmedicine.com>

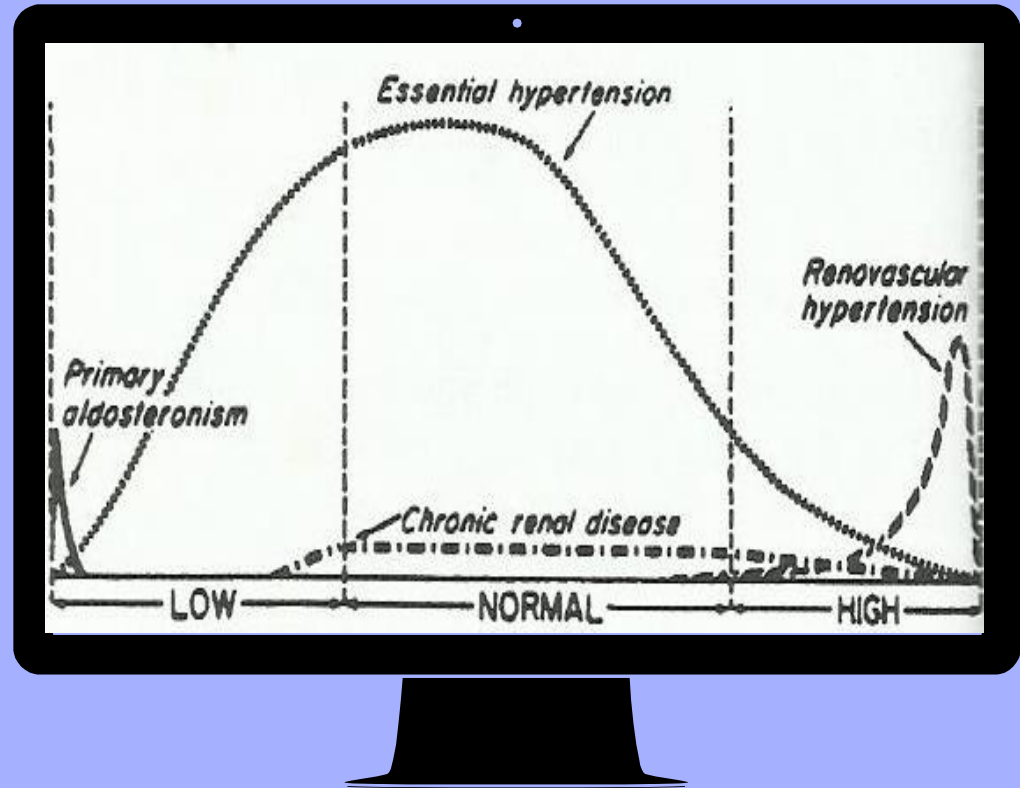
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➤ Ασθενείς με υπέρταση τείνουν να έχουν χαμηλά επίπεδα ρενίνης σε σχέση με τους νορμοτασικούς.

➤ Η πλειοψηφία τους δεν έχει χαμηλά επίπεδα ρενίνης.



renin levels. (Reprinted with permission from Kaplan NM. Renin profiles. The unfulfilled promises. JAMA 1977;238:611-613, copyright 1977, American Medical Association.)

JAMA



Πιθανές εξηγήσεις...

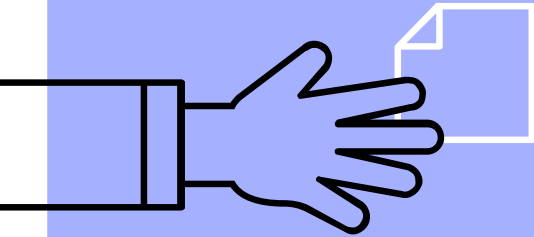
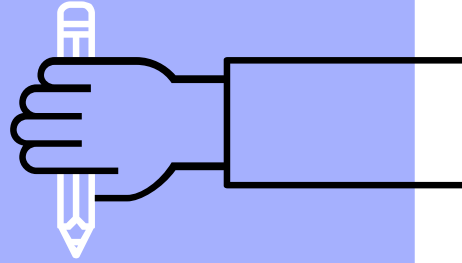
Ischemic
nephrons

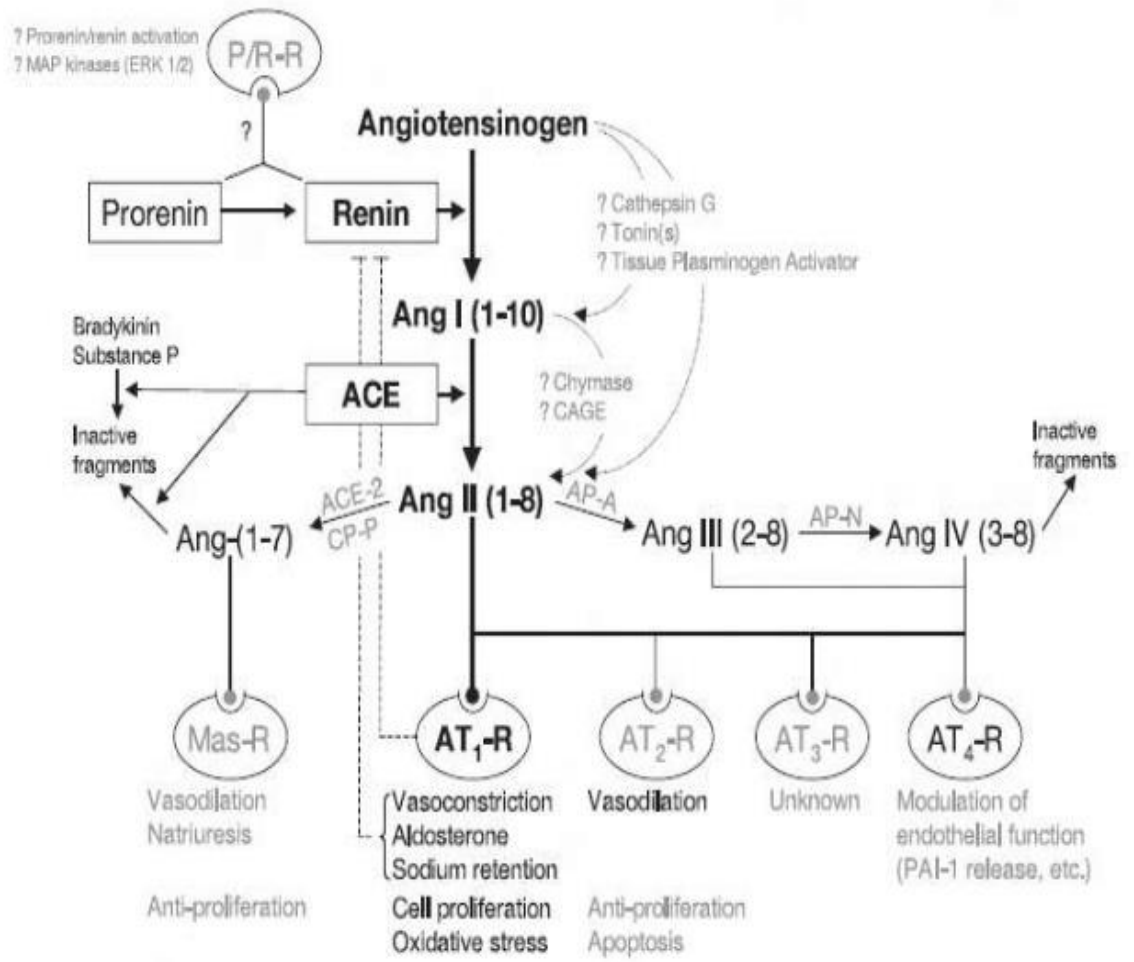
Increased
sympathetic
drive

Defective
feedback
regulation
of the
RAAS
in
the kidney

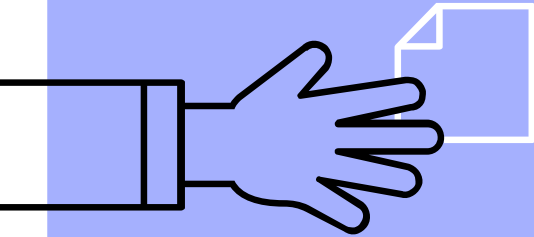
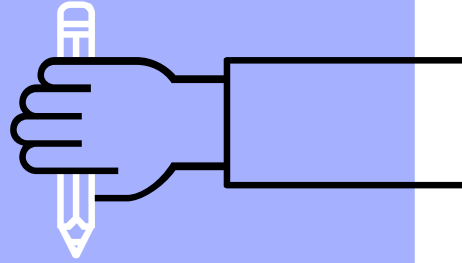


Normal Modulation



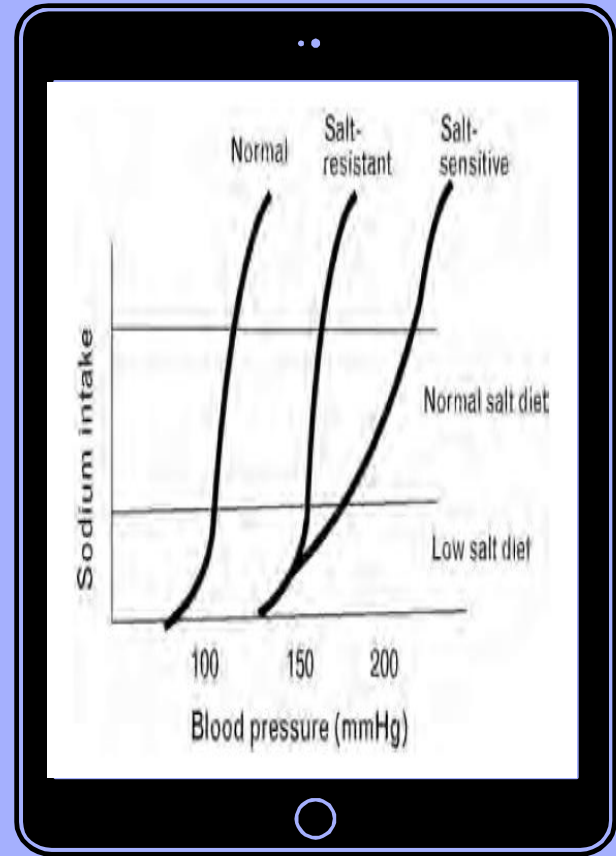
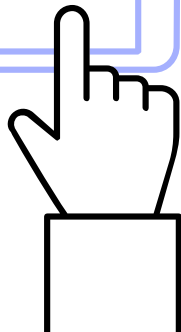
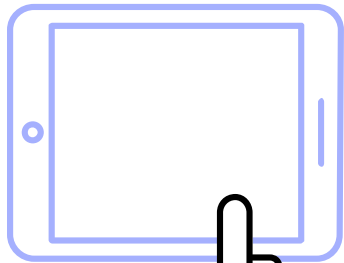


Abnormal Modulation



Εξήγηση του φαινομένου

Abnormally regulated and rather fixed local level of tissue All



Abnormal modulation



Bipolar vasoconstriction- volume analysis

Arteriolar vasoconstriction by $Ang II$ is predominantly responsible for the hypertension in pts with high renin.

Volume expansion is predominantly responsible in those with low renin



THANKS!

Any questions?

You can find me at:

www.athens-nephrology.gr

