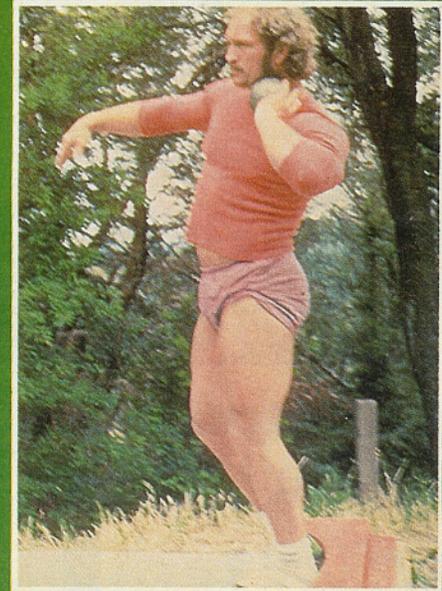
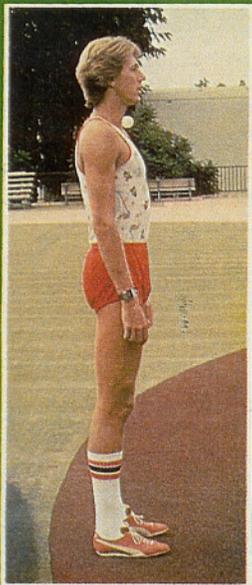
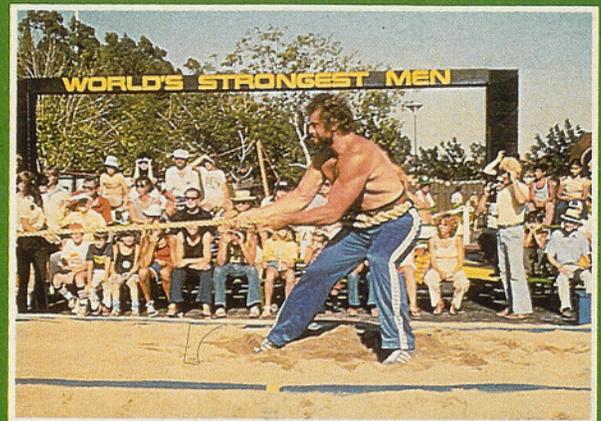
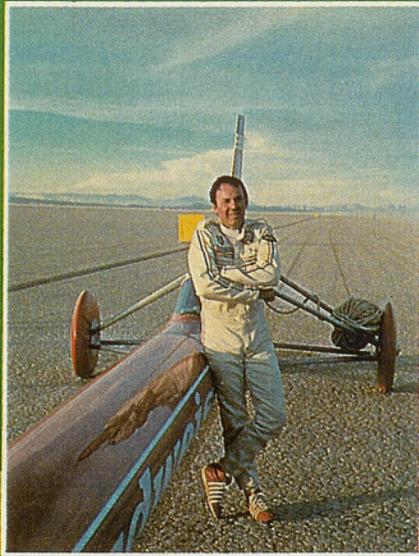
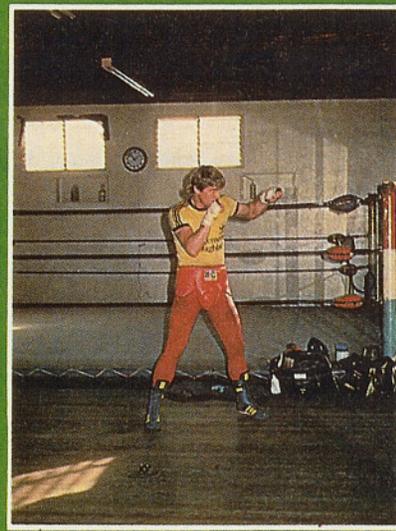
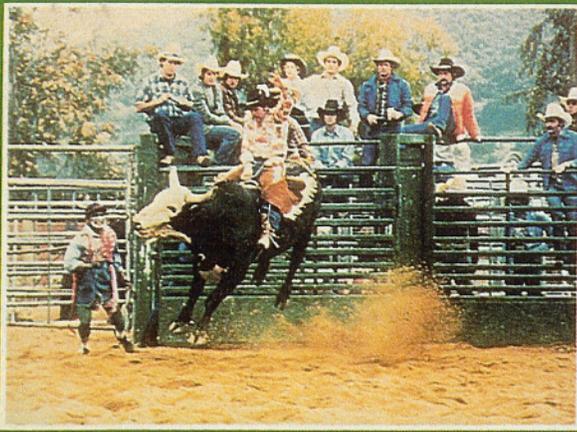




July/August, 1984



today's chiropracticTM

READ BY CHIROPRACTORS AROUND THE WORLD

THE MAGAZINE THAT REFLECTS THE LIFE PRINCIPLE IN CHIROPRACTIC



by Roy W. Sweat, D.C.

About the Author: Dr. Roy W. Sweat's practice is in Atlanta, Georgia. He is a graduate of Palmer College. In 1952, he began a course of study specializing in the upper cervical occipital-atlanto-axial complex under Dr. John F. Grostic. Dr. Grostic chose him as an instructor at his seminars. Sweat completed a three-year program in chiropractic orthopedics from the National College and is an associate professor at Life College.

Dr. Sweat designed the cervical analysis instrument. In 1981 he created the program of chiropractic Atlas Orthogonality and wrote a series of five books. Dr. Sweat has designed a chiropractic adjusting instrument and also a series of x-ray machines and the orthogonal adjusting tables.

C-Arm Cinefluorography

Adjusting Under Cine

Cinefluorography is an x-ray motion picture system. The C-Arm Cinefluorography unit was designed for use in orthopedics, surgery and traumatology. It is basically an x-ray unit to take motion pictures of bones and their movement.

The introduction of image intensifiers, video monitors and V.C.R. systems has made cinefluorography feasible in most x-ray departments today.

Basic to all cinefluorographic methods are: (1) a source of x-rays; (2) the patient; (3) the x-ray image in space (created by the varying absorption of the x-ray beam); (4) a fluorescent screen (input phosphor); (5) an image intensifier; (6) an intensified image (output phosphor); and (7) a motion-picture camera.

J. William Fielding, M.D., New York, N.Y. in his article entitled *Cineroentgenography of the Normal Cervical Spine* which was presented at the Audio-Visual Program of the Annual Meeting of the American Academy of Orthopaedic Surgeons, Chicago, Illinois, January 28 and 29, 1957, states, "Cineroentgenography is the permanent, dynamic registration of fluoroscopic images on motion-picture film. Within two years following Roentgen's discovery, efforts were made to produce such movies." He states further, "Reynolds, who began his experiments in 1921, was probably the first to produce satisfactory films by directly photographing the image on the fluoroscopic screen.

"The need for a practical means of image intensification for medical, as

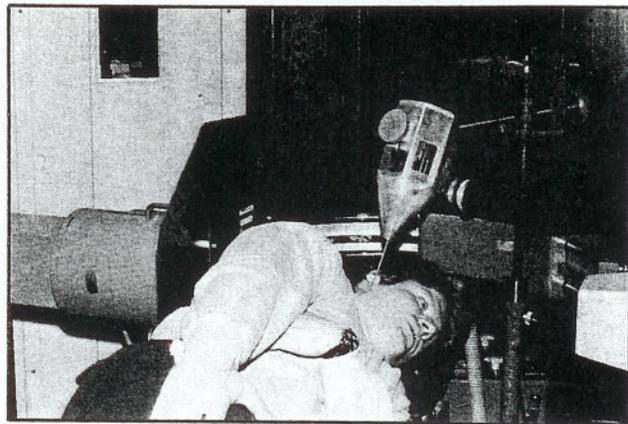
well as for other fields, led Langmuir to perfect the principle in about 1937. The image-intensifier tube resulted, making possible the indirect method of cineroentgenography."

Our cinefluorography unit is a Picker X-Ray, Type 7200 Mobile "C" Arm, with Type 3515 DG-S/P Image Intensifier and RA3905F Camera. The system includes a Sony CVM-131 Receiver Monitor, a J.V.C. 1/2 inch V.H.S., V.C.R. and a 10" x 12" black and white monitor.

The unit was purchased by the Sweat Foundation which was created by fellow chiropractors and the funds were donated by them for this research project. This unit if purchased new would run approximately \$100,000.00, however, it had been used previously for hospital purposes and was purchased for \$20,000.00.

With the cine unit we can have motion studies of the occipital-atlas-axis complex, the cervical spine and lumbar spine, and pre- and post-adjusting findings. We can observe all the various adjusting programs while they are being performed. We already have under cine, the Grostic and Palmer hand adjusting, the percussion instruments, forward probing instruments and the activator. We welcome and would like to have pictures on all the other chiropractic adjusting programs.

Mr. David L. Cone, who sells the Nuclear Magnetic Resonance Units with Picker International, was in the office and stated, "The Cine unit you have is correct for what you are trying to do, but you need better equipment



to record your findings. You are using analog image and you need a digital image.

“Digital refers to number or digit. Each number represents a shade of white, gray, or black. A digital image is an image that is reconstructed by numbers that are assigned different shades of white, gray, or black. The digital image is formed from an analog image. An analog image is a regular x-ray that has not been reconstructed by a computer. To get a digital image the x-ray machine is connected to a computer. The computer assigns each intensity of the x-ray beam a number and then reproduces it in a shade of gray, black or white; hence, the contrast on a digital image has the ability to be manipulated and bring out certain tissue densities and the contrast is much greater than on analog x-ray. Thus, the ability to see different tissue densities makes digital work very good for soft tissue work. Forms of digital

work are digital angiographic subtraction, CT scanner and NMR units.”

Cinefluorography vs. Cinerontgenography

The cinefluorography has a maximum of 5 M.A. and 100 K.V.P. and the cinerontgenography has a maximum of 300 M.A. and 125 K.V.P.

The average study can be done in three to five seconds. Milliroentgen is a unit of dose equal to one-thousandth roentgen. The formula for milliroentgen is $M.A. \times K.V.P. \times T^2$.

If each unit was used to its capacity for five seconds the cinefluorography would equal 12,500 M.R. and the cinerontgenography would equal 937,500 M.R. We can use 2 M.A. x 80 K.V.P. with four seconds which would equal 2,560 M.R., slightly more than a series of three cervical x-rays.

The 5 M.A. program, as compared to the 300 M.A. program, dramatically reduces the radiation factor to the patient and to the technician.

Chiropractic Research

We think this type research should be done by doctors of chiropractic. If it is not done by our profession, other professions will do it for us.

We plan to donate copies of these cinefluorography tapes to all the chiropractic colleges and make them available to the individual doctors. ■

References

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