

sampling rate. Aiming at the problem of low clarity of reconstructed image edge, this research introduces convolution neural network into projection image reconstruction problem.

**Results:** The application of adaptive learning algorithm improves the quality of reconstruction and achieves the removal of CT image artifact after reconstruction. Through experimental simulation, the peak signal-to-noise ratio and the similarity of image structure have been improved obviously by applying the double dictionary learning algorithm, and it reconstructed high-quality CT images have been using projection data at low sampling rate. In addition, we study the mapping relationship between sparse projection data and complete projection data in the convolution neural network training database and obtain the layer parameters needed for image reconstruction, improving the edge sharpness of the projection image effectively.

**Conclusions:** The research improves the quality of CT image reconstruction and practice verifies the feasibility, availability and generality of the proposed algorithm.

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### 031 | Study on the Safety of Mercury and Lead in Tibetan Medicine Ranansongpei

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**Background:** Tibetan medicine Ranansongpei (RNSP) is widely used to cure cardiovascular and cerebrovascular diseases despite the fact that Tsothel is a main ingredient. Tsothel is the processed product of mercury and includes other heavy metals such as lead. Though it has the effect of reducing the toxicity, enhancing the efficacy of other drugs

and as an adjuvant with other drugs, a great deal of research is needed on the drug safety of which content Tsothel.

**Methods:** By random sampling, a total of 123 patients taking RNSP were enrolled in this study. Our research investigated patients routine blood, liver, and renal functions, and levels of mercury and lead in the urine, blood, and fecal samples of patients who took RNSP under the Tibetan medical system. Participants' self-controlled experimental design was used in this study. All samples were collected before taking RNSP (Before), 15 days after taking RNSP (Middle), and 15 days after withdrawal (After).

**Results:** The results indicated that patients who took RNSP had no obvious differences in liver and renal functions, and the blood and urine tests also showed no obvious changes. Compared with the data in the before period, blood mercury levels clearly increased after intake of RNSP ( $P < 0.001$ ), urinary mercury levels increased ( $P = 0.008$ ) in the Middle period, and kept increasing ( $P < 0.001$ ) in the after period. Fecal mercury levels significantly increased in the Middle period ( $P < 0.001$ ). Blood, urinary, and fecal lead levels increased in the Middle period ( $P = 0.009$ ,  $P = 0.039$ , and  $P = 0.044$  respectively) compared with data in the before period, and there was no obvious statistical difference in the after period.

**Conclusions:** These data suggest that RNSP intake increases the body burden of mercury and lead, but does not induce liver and renal injury short-term. Patients should be cautious about consuming RNSP, and further studies are needed to evaluate its toxicity potential.

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### 032 | The Effect of Intervention Training on Body Weight, Body Fat Rate and Visceral Fat Index of College Students

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**Objective:** With the rapid development of Chinese society and the improvement of living standards, the phenomenon of excessive body weight, body fat rate and visceral fat index among college students is not optimistic. This phenomenon is common in both male and female students. In order to better solve the physiological and biochemical changes of college students and improve their physical quality, we carried out the research of this topic through 1000-meter intervention training.