Conclusions: Photobiomodulation therapy may be a favorable alternative to pharmacologic agents and surgery for androgenic alopecia, taking into account the non-invasiveness and lack of side-effects of the procedure.

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011 | The research about intelligent high precision servo control system of human scan equipment

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Objectives: The traditional body scanning equipment needs to scan and image the whole body to realize the accurate comparison of the problem area. The scanning speed of this scanning method is relatively low, and it is impossible to quickly scan and image a specific position of the human body. In this paper, the intelligent servo control system is adopted instead of the traditional scanning servo control system to realize the intelligent scanning of the human body.

Methods: The traditional servo control scheme was improved, the intelligent level of the system was improved by means of large data, and the specific position of the human body was quickly confirmed and pointed. At the same time, the high precision servo control scheme is used to realize the fast scanning of a specific area, to reduce the scanning time, and to effectively eliminate the area that does not need to be scanned directly through servo control.

Results: The intelligent servo control scheme was adopted to realize the fast and accurate scanning of specific position of human body, and the fast scanning of target point or target area could be realized. In an intelligent way to quickly judge the shape of the human body, determine the scanning scheme. Compared with the traditional scanning method, this servo control method can effectively increase the scanning time. Taking thumb scanning as an example, it can increase the scanning time by 50% and the scanning accuracy by 20%.

Conclusions: The intelligent high precision servo control system of human body scanning equipment can improve the scanning time and quality of the system based on the traditional servo control scheme. Rapid imaging of the target area with an accurate scanning range can greatly improve the equipment utilization rate. This kind of control method is very suitable for reforming the high-cost scanning equipment and maximizing the application of the equipment.

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012 | Environmental efficiency of offshore wind power site in Taiwan: an application of super-efficiency and tobit methods

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Background: Offshore wind power (OWP) is recently more discussed in terms of electricity generation for green economy in Taiwan. Formosa 1 offshore wind farm started in April 2017 as the first offshore wind in Miaoli County for commercial operation (Bilgili *et al*., 2015). The first stage of the construction involved 4 MW wind turbines which were installed in November 2016 with a total generation capacity of 8 MW. The second construction has launched in the beginning of 2019 which will involve 30 turbines with a total capacity of 120 MW. Taiwan government provides subsidy for equipment and developing processes in order to reduce costs of commercial scale. The offshore wind power