

小学野球選手における投球速度を高めるトレーニングプログラムとその即時的な効果

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【要旨】

本事例の A 選手の投球動作は, 体幹の回旋動作が小さい (テイクバックの際に後方への回旋ができていない) こと, リリース時において体幹の前傾が小さく, 肩の内旋動作 (肘関節の伸展動作ができていないことによる代償運動) が大きいことがあげられる. 本事例では, A 選手の投球動作の改善方法として, 体幹の回旋動作を利用したトレーニング (正座姿勢からの投球練習), 下肢と体幹の連動を伴ったトレーニング (真下投げトレーニング) に着目し, 投球速度の改善および投球障害の予防を目的としたトレーニングプログラムの即時的な効果を検証することとした. トレーニングの結果, 最大速度は 1 km/h (1.7 %) 増大し, 5 球中の平均速度は 3 km/h (5.4 %) 増大した. またトレーニング後の投球動作は, コッキング期におけるボール最低位時から踏込脚接地前において, トレーニング前より, 体幹の後方への回旋動作が大きくなり, 加速局面 (踏込脚接地時からリリース時) にかけては, 体幹の可動範囲が大きくなった. そして, リリース時の体幹の前傾動作は大きく, 上肢の振り動作は, リリース時に肘関節が伸展し, 肩関節の内旋動作が小さくなった. これらの結果より, 本事例で行ったトレーニングプログラムは, 投球速度の変化は小さいものの, 踏込脚接地前における肩の後方への回旋や加速局面の体幹回旋の可動範囲, リリース時の体幹の前傾動作および上肢の振り動作が改善されると考えられる.

以上のことから, 本トレーニングプログラムは, 体幹の回旋動作が小さい (テイクバックの際に後方への回旋ができていない) 選手, リリース時において体幹の前傾が小さく, 肩の内旋動作 (肘関節の伸展動作ができていないことによる代償運動) が大きくなる特徴がみられる選手に対して, 即時的に動作を改善するための有効な手段であることが示唆された.

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Training to get a quick increase in the speed of balls pitched by an elementary school baseball player

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[Abstract]

The present study developed a training program for Player A, an elementary school student, whose pitching motion had problems such as too small a rotation of the trunk of his body (no turning backwards on take-back), too small a bend of the trunk of his body when releasing the ball, and too big an internal turning of his shoulder (compensation motion due to lack of an extension motion of his elbow joint). The present study evaluated effects of a training program aimed at increasing ball speed and preventing pitching-related injuries for Player A. The program included training that utilized the rotation of the trunk of his body (pitching exercise from a sitting position) and training connecting the motion of his lower leg and the trunk of his body (*Mashitanage* training). After this training, Player A's maximum ball speed increased by 1.7 km/h (1.7%), and the average speed of 5 pitched balls increased by 3 km/h (5.4%). After the training, Player A's pitching motion changed as follows: the extent of his turning the trunk of his body backwards before landing on the step-in foot from the lowest position of the ball during the cocking period became larger than before the training, and the movable range of the trunk of his body during the acceleration period (from the landing of the step-in foot to releasing the ball) also became larger. The bending motion of the trunk of his body when releasing the ball became larger, and the swinging motion of his upper arm became smaller because of his extending his elbow joint on releasing the ball and having a smaller internal turning of his shoulder joint. These results suggest that this training program may be effective for improving the backward turning of a pitcher's shoulder before landing on the step-in foot, the turning of the trunk of the body in the acceleration period, the bending motion of the trunk of the body on releasing the ball, and the swinging motion of the upper arm. The results with Player A suggest that this training program may well be a useful method for quickly improving the movements of baseball players who have problems because the turning motion of the trunk of their body is too small, the bending of the trunk of their body is too small, and the internal turning motion of their shoulder is too large.