**Appendix 1: Comparison of Animal Trials**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Study Design** | **LOE** | **Duration** | **Subjects** | **No. Study Subjects** | **Blinded: Yes/No?** | **Subject Groups** | **Control Group Descriptor** | **Compare Group Descriptor** | **Control Group: No. Patients** | **Compare Group: No. Patients** |
| Barco et al. 2015 [28] | Randomized controlled laboratory study | I | 4 and 8 weeks | Rats | 44 | Yes-histological examination | 3 | No treatment/no injection | Group 1: repair + local applications of a fibrin sealant; Goup 2: repair + application of the fibrin sealant with 2 x 10(6) ASC, Group 3 repair only | 12 syngenic rats for biomechanical group and 9 for histological study | 12 syngenic rats for biomechanical group and 9 for histological study |
| Chen et al. 2015 [29] | Controlled laboratory study | III | 1, 2, 3, and 4 weeks | Rats | 120 | No | 3 | Rats with collagenase-induced rotator cuff injury. RCR and saline injection.There were also normal controls  | Sprague-Dawley rats with collagenase-induced rotator cuff injuries, RCR and ASC injection | 60 | 48 |
| Kaizawa et al. 2019 [30] | Randomized controlled laboratory study | II | 8 weeks | Rats | 53 | No | 4 | Standard transosseous suture repair of RC tear with no injection (n=22) | Standard transosseous suture repair of RC tear with injection of ASC, tHG, tHG/ASC (n=22 for all 3 groups) | 22 | 22 |
| Lee et al. 2020 [31] | Randomized controlled laboratory study | I | 6 weeks | Mice | 12 | No | 3 | No treatment/no injection | Group 1: 10 µl of PBS; Group 2: 10 µl of 125,000 beige ASCs into both proximal and distal ends of the SS muscle (with a total of 250,000 cells per mouse) | 4 | 8 |
| Lu et al. 2020 [33] | Randomized controlled laboratory study | I | 4, 8, and 12 weeks | Rabbits | 36 | Yes-radiologist | 2 | SVF-fibrin glue along with suture repair of RC | ASC SVF along with suture repair of RC | 18 | 18 |
| Lu et al. 2018 [32] | Randomized controlled laboratory study | I | 8 weeks | Rabbits | 36 | No | 2 | SVF-fibrin glue along with suture repair of RC | ASC SVF along with suture repair of RC | 18 | 18 |
| Oh et al. 2014 [34] | Randomized controlled laboratory study | I | 12 weeks | Rabbits | 32 | Yes-histological examination | 4 | "Normal controls" | Saline+repair of SSC, saline only, ASC+repair, ASC only | 16 | 16 |
| Rothrauff et al. 2018 [35] | Controlled laboratory study | II | 8 weeks | Rats | 110 | Yes-histological examination | 8 | 1: No repair, 2: Repair only | Repair augmented with (3) fibrin, (4) GelMA, (5) fibrin + ASCs, (6) GelMA + ASCs, (7) fibrin + ASCs + TGF-β3, (8) GelMA + ASCs + TGF-β3 | 12 | 72 |
| Valencia et al. 2014 [67] | Randomized controlled laboratory study | I | 2 and 4 weeks | Rats | 50 | No | 3 | Suture only | Group 1: Collagen carrier alone, Group 2: Collagen carrier and ASC injection (2x10^6 ACSs) | Not reported | Not reported |
| Wang et al. 2019 [37] | Randomized controlled laboratory study | I | 8 and 16 weeks | Rats | 42 | No | 3 | Saline injection | ASCs-Exos injection | 14 | 14 |
| Wang et al. 2020 [38] | Randomized controlled laboratory study | I | 18 weeks | Rabbits | 35 | Yes-histological examination | 2 | Saline injection | ASC-Exos injection | 7 | 7 |

ASC, adipose stem cell; Exos, Exosomes; GelMA, Gelatin Methacrylate; LOE, level of evidence; No, number; PBS, Phosphate Buffered Saline; RC, Rotator Cuff; RCR, Rotator Cuff Repair; SVF, Stromal Vascular Fraction; tHG, Tendon Hydrogel.