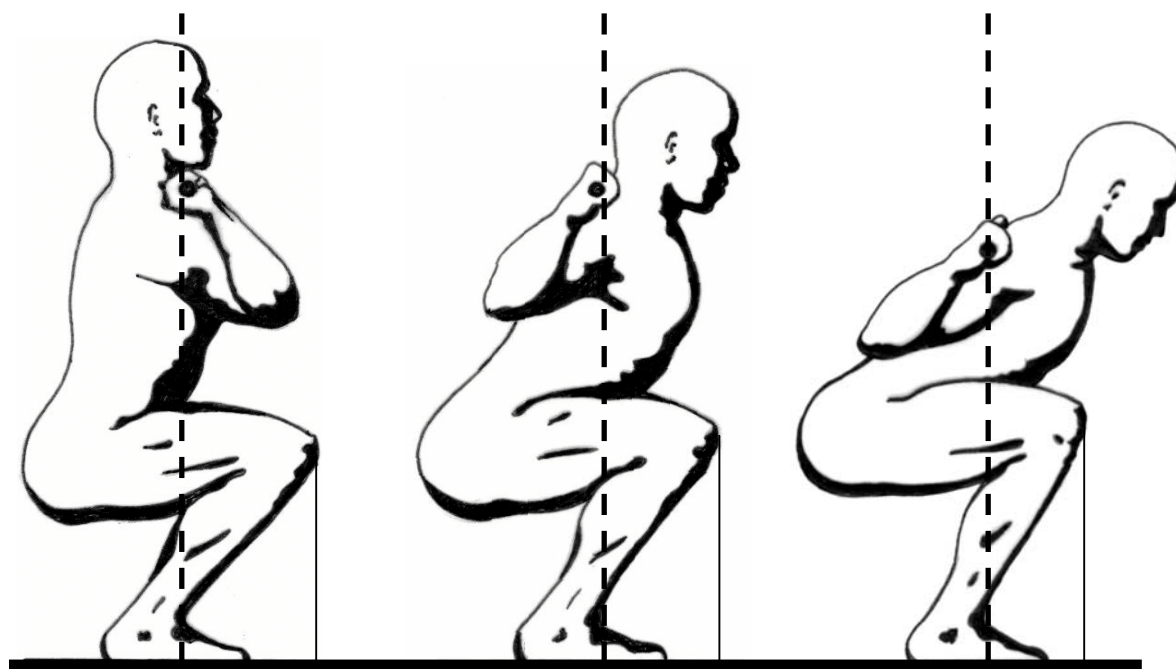


## *The Squat*

considerations are secondary to this simple piece of physics, and correct form in these exercises is dictated by it.

For instance, knees too far forward would shift the bar to a position vertically forward of mid-foot; too horizontal a back would do the same thing. Too vertical a back would shift the bar behind mid-foot, as would insufficiently forward knees. These relationships are based on the position of the bar and the angle of the knees. If the high bar position is used, the angles change, as they will for the front squat. But for any given position of the bar and any acceptable knee angle, the angles formed by the body during the correct squat will be determined by the vertical relationship between the bar and the mid-foot, and the mechanics of the movement serve to maintain this relationship.



**Figure 2-31.** Bar position ultimately determines back angle, as seen in this comparison of the front squat, the high-bar squat, and the low-bar squat. Note that the bar remains balanced over the mid-foot in each case, and this requires that the back angle accommodate the bar position. This is the primary factor in the differences in technique between the three styles of squatting.

### **Grip and arms**

Grip errors are common even among experienced lifters. The grip on the bar is the first part of your temporary relationship with the barbell that is referred to as a “set.” If that grip is wrong, none of the reps in that set will be optimal, because the relationship of the body to the bar is determined first by hand position on the bar. For instance, an uncentered placement of the bar on your back results in an asymmetrical loading of all the components under the bar: more weight on one leg, hip, and knee than the other, as well as a spinal shear. A careless approach to grip placement could result in problems with heavy weights. Most people, as discussed earlier, will need to take an even grip somewhere between the score mark and the end of the knurl.