Benefits of capsules over tablets for optimizing product performance and improving patient compliance

While tablets and capsules are both safe and viable dosage forms, capsules compare favorably to tablets in a number of ways, including:

Cost savings and ease of manufacturing. Capsule formulations typically require lower amounts of excipients than tablet formulations because the capsule shell rather than the formulation ensures the delivery of the active pharmaceutical ingredient (API) to the treatment site. This allows capsules to be filled with formulations that might be difficult or impossible to deliver in tablet form, including modified-, sustained-, and enteric-release pellets and semi-solids, such as fats, oils, waxes, and emulsions.

Fewer ingredients, processing steps, and analytical tests are required to develop a new capsule product than a new film-coated tablet, which can reduce manufacturing complexity, development costs, and production timelines. Capsules also provide greater stability for highly reactive and heat- or light-sensitive APIs, lowering the risk of degradation during transportation and storage.

Control of highly potent APIs. Capsules are a reliable choice for highly potent APIs because they require fewer manufacturing steps than tablets and can function as hermetic containers for the API. This can reduce the risk of worker exposure to the API, whereas during tablet production, the risk of exposure typically remains after compression until the tablets are film coated. Additionally, the ability to fill hard capsules with liquid and semisolid formulations allows formulators to use techniques that produce minimal airborne dust, which lowers the risk of cross-contamination and may reduce capital requirements for dedicated facilities, air handlers, and process equipment.

Ease of swallowing. Capsules have a hard surface and oblong shape, which makes them easy to swallow. While tablets can also be oblong in shape, the increased number of excipients in tablet formulations can result in a larger overall dosage form compared to the same product in a capsule. The capsule shell also masks unpleasant tastes and odors, which can improve patient adherence, whereas uncoated tablets and even film-coated tablets may have an unpleasant aftertaste.

In one study, more than half of consumers surveyed said they preferred capsules over all other oral solid dosage forms, citing ease of swallowing as a primary reason [1]. An internal Lonza study found that consumers believe easy-to-swallow dosage forms work faster and better preserve a medication’s dose integrity and ingredient purity, which suggests that consumers may have greater confidence in the effectiveness of capsule drug products.

Attractiveness. The number of tablet coating colors is limited compared to the several thousand different capsule colors available, as well as the unlimited options for unique imprints and logos. This allows formulators to build brand recognition through product design more easily than with tablets. Options include the use of two contrasting colors, logos printed directly on the capsule, and high-gloss finishes, which can make products more attractive and memorable. The variety of color options also allows manufacturers to consider a color’s psychological impact when designing a product and avoid unsuitable colors—for example, avoiding red for antidepressant medication.

Use in combination products. Many APIs are incompatible or have different stress thresholds, making it difficult to combine them into a stable single tablet formulation. These challenges are easily overcome when combining multiple APIs into a single capsule. Formulators can fill multiple finished dosage forms into the capsule or use a wide array of techniques to develop powders, pellets, or beads, as well as liquid or semisolid formulations that can be combined with no adverse effects.

Capsules also provide more opportunities to develop controlled-release and other high-value, novel products. This is supported by capsules’ broader formulation development options and the flexibility to combine existing dosage forms into a single capsule.

Reference


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